4-1-1995

Factors Which Predict the Initiation and Use of Alcohol in Rural Adolescents

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FACTORS WHICH PREDICT THE INITIATION AND USE OF ALCOHOL IN RURAL ADOLESCENTS

A Thesis
Presented to
the Faculty of the Department of Public Health
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by Charlotte Elizabeth Swint

April 1995

FACTORS WHICH PREDICT THE INITIATION AND USE OF ALCOHOL IN RURAL ADOLESCENTS

Date Recommended 4/5/95

Director of Thesis

Director of Graduate Studies 5/3/95 Date

Acknowledgements

I would like to thank my committee for their assistance in the preparation of this thesis. I would especially like to thank my advisor, Dr. Richard Wilson, for his help in choosing my topic and for his help with my data analysis. His patience and willingness to help were much appreciated.

I also appreciate Dr. John White's agreeing to serve on my committee. He helped me to narrow my topic and gave me guidance on how to begin to undertake this project. He was also available for consultation whenever I had a question.

Dr. Baum helped immensely during the final stages of my thesis. He was especially helpful during the data analysis phase of my work. His comments and suggestions have helped me to create a thesis which is "technically correct."

I also appreciate Dr. Nicholson allowing me the freedom to do the research that I wanted to do. If I had a question, he would answer it, but for the most part he trusted that I could write a thesis without much guidance.

I would also like to thank Kathy Kelly for her technical advice. Jason Bolin and Daltrey Price also deserve thanks for helping me revise my numerous tables.

Finally, I would like to thank my family for their support. Because they simply refer to my thesis as "my paper," I am sure that they have no idea how much work this project has actually been!

Table of Contents

List of Tables

FACTORS WHICH PREDICT THE INITIATION AND USE OF ALCOHOL IN RURAL ADOLESCENTS

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The purpose of this research was to determine whether a selected group of factors are significant when trying to predict the use of alcohol by adolescents who live in rural areas. This research is important because most of the studies concerning drug and alcohol use in adolescents have focused on adolescents who live in urban areas. The results of such studies may not be generalizable to rural populations.

The factors investigated included the following: availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade level. These factors were chosen based on their inclusion in four prominent theories regarding adolescent drug and alcohol use. Data were collected for this study in April 1994 in Warren County, a rural county in Kentucky. The responses from 2,353 high school students were collected using the Warren County KIDS (Knowledge and Information about Drugs and Substances) Team Survey. The data were analyzed using a chi square analysis. All of the factors were found to be significantly related to

alcohol use in rural adolescents. The results of the study revealed that having alcohol available, having peer pressure to use alcohol, having parents who used alcohol or who had permissive attitudes toward alcohol use, using tobacco, being male, and being in higher grades increased the likelihood that adolescents would begin using alcohol.

Chapter 1

Introduction

When describing alcohol use in early America, W. J. Rorabaugh wrote that "drinking customs and habits are not random, but reflective of a society's fabric, tensions, and inner dynamics, and of the psychological sets of its people" (Rorabaugh, 1979, p. xii). When studying alcohol use in today's society, this statement also holds true. There are reasons why people begin to drink alcohol. Usually alcohol consumption begins during adolescence. By identifying and examining the factors related to the initiation of alcohol use, a better understanding of why alcohol use is very prevalent in the United States today can be gained. Studying the factors which predict alcohol use in rural adolescents can help health educators and other health professionals develop programs to prevent and control alcohol use and abuse in rural areas.

Need for the Study

It is true that no single factor explains adolescent drug use and that this problem has multiple causes; therefore, the people who really want to understand the problem "must resist the tendency to look for the cause, or

the underlying problem, or the solution" (Beschner, 1986, p. 4). The examines predictors of the initiation of alcohol use in rural areas were examined so that the problem of adolescent alcohol consumption can be better understood and prevention programs can be created. Understanding the use of a drug such as alcohol is important because misuse is classified as one of the behaviors most detrimental to long-term mental, physical, and material well-being, along with dropping out of school and early sexual involvement (Hayes, 1987; Hofferth & Hayes, 1987; Jessor & Jessor, 1977; Newcomb & Bentler, 1989; Wallace & Bachman, 1991). Hechinger points out that studying the alcohol behavior of adolescents is important because "youthful addiction produces serious long-term consequences, and young adolescents are at special risk because they naturally like to experiment and explore" (1992, p. 113).

Alcohol has also highly correlated with later use of illicit drugs (Horton, 1988). Kandel, Yamaguchi, and Chen (1992) state that alcohol is one of the first stages of involvement in other drugs. After adolescents start using alcohol, it is possible that they will progress to using marijuana, other illicit drugs, and misusing medically prescribed drugs.

Purpose of the Study

The purpose of this study is to determine 1) the incidence of alcohol use in a specific rural area and 2)

whether or not the following factors predict the initiation and use of alcohol in rural adolescents: availability of the alcohol, peer influence, parental influence, tobacco use, gender, and grade.

Significance of the Study

Most of the studies concerning the initiation and use of alcohol in adolescents have been focused on adolescents in urban areas. By focusing on factors related to adolescents in rural areas, more effective prevention programs can be devised to target youths in these areas. Madlem (1993) states that health educators who are familiar with the knowledge and practices of rural youth with regard to alcohol at the beginning of program planning will be able to enhance the quality and effectiveness of health education and prevention programs related to alcohol.

Research Design

This study was focused on the factors related to the initiation and use of alcohol in adolescents in rural areas. Data from the April 1994 administration of the Warren County Schools KIDS Team Survey were analyzed (Appendix A). This instrument has been used in Warren County since 1990 to assess alcohol and drug use. This instrument is a self-report survey, and in 1994, 2,353 students in grades 9-12 responded to the survey. The only measure of validity used was face reliability, and the reliability was determined by a Pearson's Correlation Coefficient of .663.

The data were collected and entered into SPSS. Chi square was the primary method of statistical analysis to determine if the selected factors were significant in predicting the initiation of alcohol use in rural adolescents. In order to have more balanced cells in the chi square analysis, several of the questions were re-coded (Appendix B).

Sample

The students surveyed live in Warren County, Kentucky. In 1990, Warren County had a population of 77,720, and Bowling Green, the largest city in the county, had a population of 41,688 (BRADD, 1994). In addition, 46.4% (36,032) of the population lived in rural areas, and 4.9% (3,736) lived in farming areas (BRADD, 1994). Out of the total population for the county, 13.1% (10,168) people were from the ages of 0-9, and 15.9% (12,389) were from the ages of 10-19 (BRADD, 1994).

Students in grades 9-12 voluntarily completed the Warren County Schools KIDS Team survey. The survey was administered in April of 1994 to 2,353 students in Warren County High Schools. As of April 29, 1994, attendance at the high schools was:

Greenwood High School - 1,061

Warren East High School - 824

Warren Central High School - 910.

The total attendance at the high schools was 2,795 students.

Therefore, the response rate for the survey was 84.19%.

Assumptions

For the purposes of this study, the following assumptions were made:

1. Because the only urban area in Warren County is Bowling Green, and the majority of the children living in the city of Bowling Green attend Bowling Green City schools (a separate school system), it can be assumed that the majority of the respondents live in rural areas.

2. When completing the Warren County KIDS Team survey, the students were honest.

Delimitations

1. Only those students present on the day the survey was administered were given an opportunity to participate.

2. Students attending the Warren County Alternative School were not included in the survey.

Limitations

1. The generalizability of the results may be limited because the responses of these students may not be representative of students in other geographic locations.

2. The survey did not measure or control for all of the factors which affect alcohol use in adolescents.

3. The survey was not specifically designed to measure variables related to the initiation of alcohol use in adolescents.

Definitions

Adolescent. A person who is in the developmental period entered at approximately 10 to 12 years and ending at 18-22 years which is the transition from childhood to early adulthood (Santrock, 1992). For the purposes of this research, an adolescent is a person who is in grades 9-12.

Availability of alcohol. This variable is defined by answers to the following questions: Where do you most often get the alcohol that you drink? (#21); Is it possible to buy alcohol or other drugs (not including tobacco) in school or on school grounds? (#44).

Rural. Rural is a territory, population, or housing unit not classified as urban (U.S. Census, 1990). Urban is a county or group of contiguous counties that contains at least one city of 50,000 inhabitants or more. Warren County fits this definition because, Bowling Green (the largest city in the county) had about 42,000 inhabitants in 1994.

Initiation of alcohol use. For the purposes of this study, the initiation of alcohol use is defined by choosing an answer other than "never" or "don't drink" for the following questions relating to alcohol use in the KIDS survey: When was the first time you drank more than just a few sips of alcohol (Beer, wine, wine coolers, or liquor)? Choose only one (#11); How many times have you had alcohol to drink in your lifetime? (More than a few sips.) (#13); How many times, if any, have you had alcohol

to drink in the last 30 days? (More than a few sips.) (#14).

Peer influence. This variable refers to pressure or by friends or acquaintances to use alcohol. It is measured by responses to the question: At what grade did you first feel influenced or pressure by others to drink? (#12).

Parental influence. Having parents who use alcohol or who have permissive attitudes toward alcohol use. It is measured by answers to the questions: With whom do you live? (#2); Have your parents allowed you to have a teen party during which alcohol was served? (#20); If you came home from a party and your parents found that you had been drinking, how concerned do you think they would be? (#23); Are you aware of someone close to you who has a drinking or drug problem? (Select all that apply) (#45); How many times has one or both of your parents talked with you about alcohol and/or other drugs? (# 47).

Tobacco use. Use of cigarettes, chewing tobacco, or snuff. It is measured by answers to the questions: How many times in your lifetime have you smoked cigarettes? (#7); How many times in the last 30 days have you smoked cigarettes? (#8); How many times in your lifetime have you used chewing tobacco or snuff? (#9); How many times in the last 30 days have you used chewing tobacco or snuff? (#10).

Summary

Chapter 1 provided an introduction to the study. The need for the study was to examine factors which will create

a better understanding of alcohol use in adolescents. The purpose of the study was to explore the incidence of alcohol use in adolescents in Warren County, Kentucky and to determine whether the availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade predict the initiation of alcohol use in adolescents living in rural areas. This research was discussed as being significant because most research about alcohol and drug use focuses on urban adolescents. The research design and sample were presented. Assumptions, delimitations, limitations, and definitions were also included.

Chapter 2

Review of Related Literature

The study of alcohol use is facilitated by the fact that "alcohol is regulated, it comes in a form that can be precisely measured, and there is a long history of concern about alcohol and the abuse of it" (Clayton & Ritter, 1985, p. 70). Rachal et al. (1982), however, point out that research on adolescent drinking has been characterized by little theoretical integration and almost no systematic accumulation of knowledge. It has been stated that "most of the studies of teenage drinking have contributed only descriptively to our knowledge, without systematically adding to our ability to explain adolescent drinking behavior" (Clayton & Ritter, 1985, p. 71). The purpose of this study is to examine the factors which may predict alcohol use in adolescents who live in rural areas. The factors that were studied were availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade.

Studies Related to Alcohol Use

Alcohol and American Society

Alcohol is a drug. Because it is a drug, it is used

for specific reasons. It has been regarded as "a source of desirable, temporary mood-modification and conviviality on one hand, and a significant factor in personal and social disorganization, disease, and immortality on the other" (Carroll, 1975, p. 1). In the National Household Survey on Drug Abuse: Main Findings 1990, it was found that "alcohol is by far the most frequently used drug in the United States. The legal status of alcohol contributes to its social acceptability, ready availability, and relatively low cost" (National Institute on Drug Abuse [NIDA], 1992, p. 83). The results of the study suggested that some 83.2% of the household population aged 12 and older had tried an alcoholic beverage at some time in their lives, 66.0% had used alcohol in the past year, and 51.2% had used alcohol in the past month (p. 83). It has been estimated that persons of the age of 14 and above each consume 2.65 gallons of pure alcohol each year; this alcohol could come from about 50 gallons of beer, 20 gallons of wine, or 4 gallons of distilled spirits (Hurley & Horowitz, 1990).

In the United States, drug problems including alcohol use and abuse are not limited to any one group or geographic area (Bachman, Wallace, O'Malley, Johnston, Kurth, & Neighbors, 1991). There is not one economic or social group to which all drug users belong, but alcohol use affects all economic and social groups. It is known that alcohol problems are estimated to cost the nation more than $70

billion a year, and its use is involved in nearly half the deaths caused by motor vehicle accidents, suicides, and homicides (Hechinger, 1992, p. 110).

Alcohol and Adolescents

Adolescence is a time of high vulnerability to the development of problems and dependencies (Jaynes & Rugg, 1988). Reilly, Leukefeld, Gao, and Allen (1994) point out the reasons why adolescents may be vulnerable. Biologically, they are undergoing physical development. Socially, they are experiencing changes related to the differences in expectations which children and adults face, and peer relationships become more important. Psychologically, adolescents must adjust to many changes in their body and in their expectations. In addition, the cognitive processes of adults begin during adolescence; therefore, they are not fully developed.

Adger and DeAngelis (1994) believe that the greatest health threats for the adolescents of today are behavioral and not biomedical. Today most adolescents take part in some activity which threatens their health and well-being, and for many adolescents this activity is drinking. Horton (1988) states, "Alcohol is the drug of choice in this society. Not surprisingly, it is also the drug of choice among adolescents" (p. 5). Alcohol is readily available, and "it holds a unique and an ambivalent place in our collective lives" (Horton, 1988, p. 5). Alcohol,

therefore, can be viewed as the most dangerous drug in our society (Horton, 1988). Because of the pervasiveness of alcohol use, adults find it difficult to educate children and adolescents about the dangers of using it (Horton, 1988). In addition, the public has tolerated alcohol as a legal drug, and adults see alcohol with a reassuring familiarity; therefore, adults believe that adolescents will not abuse alcohol as they grow older (Mitic, 1989).

Adolescents are using alcohol today in great numbers. The National Household Survey on Drug Abuse: Highlights 1990 (NIDA, 1991) states that the percentage of youth from the ages of 12 to 17 who had used illicit drugs, alcohol, or cigarettes during their lifetime or during the past month was highest in the late 1970s, and rates have been decreasing since that time. Between 1988 and 1990, there was a slight decrease in the lifetime use of any illicit drugs, alcohol, and cigarettes. In addition, in 1990 48% of adolescents reported they had used alcohol in their lifetime, and 24% reported that they had used alcohol in the past month. Healthy People 2000 (United States Department of Health and Human Services [USDHHS], 1992) points out that alcohol use for adolescents has been decreasing, but it is still a problem, especially for high school dropouts.

The Monitoring the Future Survey for 1993 (NIDA, 1993) reported that for the class of 1993, 51.0% used alcohol in the past month (30 day prevalence rate). This rate has

shown a steady decrease since the survey for the class of 1977. Only 2.5% of students used alcohol daily in the last 30 days which was the lowest rate ever reported since the survey for the class of 1975. In addition, one in four students in high school has a serious drinking problem with approximately four million youths under the age of 17 being alcoholics (Horton, 1985, 1988).

The fact that adolescents are using alcohol is often not acknowledged by society. Although society legally regulates the access which adolescents have to alcohol, most adolescents do not wait until they are of the legal age to drink (Mitic, 1989). In fact, studying the use of alcohol and tobacco complicates any analysis because these drugs are legal but have various age restrictions, and adolescents often do not interpret these drugs as being illegal (Segal, 1986). Many myths regarding adolescent alcohol use are pervasive in our society. Some of the most prevalent myths are the following: one can be too young to have an alcohol problem; it is acceptable for boys but not girls to try alcohol; getting drunk once is a learning experience that will preclude later heavy drinking; drinking alcohol demonstrates masculinity; intoxication is humorous; and alcoholics are happy drunks (Horton, 1988). These myths should be overshadowed by the fact that drug use in general may have declined slightly in recent years, but alcohol has become a more serious problem among ten- to fifteen-year

olds in the past two decades. A greater proportion of young adolescents use alcohol, have their first drinking experience earlier, and report frequent intoxication (Hechinger, 1992).

Agencies which are a part of the media, the government, and health and educational authorities and services have given more attention to the alcohol problem, but widespread misuse and abuse of drugs and alcohol by adolescents has not changed greatly. Grob and de Rios (1992) believe that it is statistically normative for adolescents to engage in some degree of illegal drug taking. Robins (1984) points out that practically all adolescents eventually try alcohol.

Healthy People 2000 (USDHHS, 1992) states that the period of adolescence is a time of change and experimentation, and behaviors are begun which may become permanent. However, the social climate in the United States is beginning to change as the magnitude of the alcohol and drug problem is acknowledged. There is a growing intolerance for the abuse of drugs and alcohol.

Alcohol is the root of a cultural controversy in the United States. In the debate over alcohol use by adolescents, one side advocates the view that using alcohol is illegal for people under the age of twenty-one; therefore, there can be no responsible use of alcohol for this age group because it is an illegal substance (Horton, 1988). The opposing view is that alcohol use is a rite of

passage from adolescence to adulthood in today's society (Franzlowiak, 1987; Mitic, 1989). This view is supported by the idea that it is not realistic to prevent alcohol use in adolescents, and the prevention of problem drinking should be the goal (Knott, 1986).

Many researchers have subscribed to the idea that alcohol use is a normal part of adolescent development. Grob and de Rios (1992) believe that the use of these substances is accepted by society because it is believed that these substances are safer than other drugs. They see the use of drugs such as alcohol as an attempt by adolescents to become adults and to establish a personal identity. Because there are no preestablished paths to initiation into adulthood, adolescents are faced with "widespread alienation and despair" as they mature (p. 135). They assert that either alcohol or cigarette use alone will cause "significantly greater" morbidity and mortality than all other illicit substances combined (p. 124).

Knott agrees with the notion of alcohol being a part of development. This researcher believes that the use of alcohol is a "behavior more closely integrated into the developmental process--it is viewed as a part of a general developmental adaptation to self, others, and situations rather than as an isolated and necessarily deviant behavior" (1986, p. 119). Mitic (1989) adds that the consumption of alcohol is often condoned by parents as a part of the

maturation process in preparation for the responsible use of alcohol during adulthood.

Horton (1988) takes the opposing view on this issue. He believes that the most dangerous myth concerning alcohol is that its use is a rite of passage into adult society. He believes that society expects that children will use alcohol, and they will continue to meet that expectation. If children do not experiment, he attests that they will not become regular users. Horton states that society must send a message that "no use of alcohol or other drugs is expected or acceptable, in any amount, at any time, under any condition for children and youth" (1988, p. 7). Jaynes and Rugg (1988, p. 11) agree by stating that adults who allow adolescents to experiment with alcohol and then decide on their own to discontinue its use or to continue the use in a responsible manner have "unrealistic expectations."

Smart (1980) states that drinking is a complex, socially controlled behavior. The subjective reasons for drinking involve curiosity and celebration at the outset and only later do desires to socialize or medicate psychological pain become important. Problem alcohol and drug use is "a symptom, not a cause, of personal and social maladjustment," and the reason for an adolescent's drug use can best be understood by reviewing the "context of an individual's personality structure and developmental history" (Grob & de Rios, 1992, p. 121). Segal (1983) points out that drinking

not only serves a social function but it also is a means of coping with needs and problems.

Many adolescents are turning to alcohol use as a method of coping with troubled feelings and tense situations (Hechinger, 1992, p. 115). Today drug abuse and alcohol use are prevalent because of factors such as dysfunctional family life, dysphoria, and self-medication (Grob & de Rios, 1992). Hechinger agrees with this idea by saying that, "To some extent, using drugs is a form of self-medication for depression and other distress. However dangerous and misguided, it is an effort at coping. In the difficult state of trying to leave childhood behind and appear grown up, many teenagers use drugs as a way of feeling strong, brave, competent, and sophisticated" (Hechinger, 1992, p. 110). Mitic (1989) adds that the adolescent years are a time of experimentation and discovery but also a time when feelings of insecurity and indecision may occur, and unfortunately alcohol usually plays a role in many adolescents' experimentation phase.

Rural Adolescents--A Special Case

Adolescents who live in rural areas must adapt to different social networks and family interaction patterns, concentrations in populations, economic influences, access to services, history, and access to urban areas. Many of these issues influence adolescent alcohol and drug use (Reilly, Leukefeld, Gao, & Allen, 1994). Today the small

town environment of a rural area provides very little insulation against the risks and problems associated with the alcohol consumption of adolescents (Mitic, 1989). The data regarding alcohol use in rural areas is often contradictory.

Hahn (1982) notes that the once noticed difference between urban and rural drug use is beginning to diminish. In this study of students in Indiana, he found that significantly more rural students at all grade levels investigated were using alcoholic beverages than urban students. He also noted that older students from rural areas consumed beer more frequently than older students in urban areas, and that older rural students consume alcoholic beverages in much larger quantities than older urban students.

Other research has shown that rural adolescents have a lower level of alcohol use and abuse than adolescents in urban areas (Gibbons, Wylie, Echterling, & French, 1986; Napier, Carter, & Pratt, 1981). The research also suggests that alcohol use and abuse is not strictly an urban problem, and rural adolescents are increasingly using alcohol. Rural patterns of alcohol and drug use, however, are different from patterns found in urban areas (Blazer, Crowell, & George, 1987; Globetti, Alsikafi, & Morse, 1978; Reilly, Leukefeld, Gao, & Allen, 1994).

Pruitt, Kingery, Mirzaee, Heuberger, and Hurley (1991)

studied the perceptions of adolescents in rural areas concerning the number of friends who used drugs, the amount of information about drugs received from friends, and the connection between their perceptions and actual drug use. They found that students who perceived a higher degree of drug use among friends and who received more information about drug use from their friends used drugs more frequently. They determined that in rural areas peer pressure is strongly related to drug abuse.

In a similar study, Napier, Bachtel, and Carter (1983) collected data in rural Georgia. They found that 76.7% of the adolescents had consumed alcohol at least once. They found that age, sex, race, parental relationships, religiosity, peer influence, income, deviant behavior, and parental drug use were important factors in explaining drug use in rural areas. The importance of the interaction of these socio-demographic, behavioral, and psychological factors was stressed. The significance of peer group identification and peer influences in drug abuse were also pointed out.

Initiation of Alcohol Use

It is clear that adolescents use alcohol for many reasons, but unless it is understood why they begin to use alcohol, adolescent drinking will never be completely understood. Kandel and Logan (1984) report that the age range for the initiation of alcohol is from 10 to 18 with

the mean being at age 14. It has been reported that the initiation of alcohol and other drug use may begin as early as the fourth to the sixth grades in rural areas (Oetting & Beauvais, 1990; Reilly, Leukefeld, Gao, & Allen, 1994).

Jaynes and Rugg state that adolescents use alcohol because it relaxes them, helps them to have fun, helps them fit in, allows them to forget their problems, and helps them to focus on good feelings (1988, pp. 5-6). They believe that "people begin using drugs because it feels good," and because relief from pain can be moments away (p. 6). They stress that while the experimentation with alcohol may not predict problems later, it is the first step in the pattern. Because of this fact, interventions to prevent alcohol use should begin as early as possible.

Abstinence and Alcohol Use

When examining the issue of initiation of alcohol use, abstinence from it should also be considered. Stumphauzer states that "the process of learning not to drink, and the variables that control it have received almost no attention" (1983, p. 39). He stresses the fact that the percentage of nondrinking adolescents may be reported in a selected group of literature, but the focus is usually then centered on the adolescents who do drink. In his study of nondrinking adolescents he found that peer and parent role models who did not drink, self-control, and reinforcement had a strong influence on adolescents who were nondrinkers.

Jaynes and Rugg (1988) point out that there are many reasons why people choose to abstain from the use of alcohol and other drugs. Religious beliefs form the basis of why some people choose to abstain. Others believe that using alcohol is unhealthy and physically harmful; therefore, they choose not to use it. In addition, people who have grown up in homes disrupted by the use of mind-altering substances have chosen to abstain because of the dysfunction of their families. They point out that the goal of abstinence for prevention and treatment programs for adolescents is questioned; however, they believe that teaching abstinence rather than controlled drinking is preferred for adolescents because of their vulnerability.

Theoretical Background On Initiation of Drug Use

Several theories have been proposed to explain drug and alcohol use in adolescents. The theories presented here discuss the initiation of alcohol use. Although the theories do not apply specifically to rural adolescents, they are generalizable to all adolescents. Please see Table 1 for a comparison of the variables found in each theory along with the variables in the Warren County KIDS Team Survey.

The Bad-Habit Theory of Drug Abuse. Goodwin (1980, p.12) presents drug use, specifically alcoholism, as a bad habit, or a "repetitious, harmful, semireflexive behavior resulting from classical conditioning in 'susceptible'

individuals." He defines susceptibility as both the inherited and psychosocial influences which affect a person. In this theory, the initiation of alcohol use is influenced by availability, peer pressure, rebelliousness, family attitudes, psychiatric symptoms such as depression and anxiety, and antisocial behavior. Goodwin acknowledges that a person may be genetically predisposed, and such a person would initiate alcohol use more rapidly, and the progression from use to abuse would occur rapidly. This theory is applicable to all age groups, both sexes, and all ethnic groups.

Developmental Stages in Adolescent Drug Involvement. Many developmental stages theories have been proposed relating to a variety of human characteristics related to cognitive, psychological, and physiological functions. Such stages have "been postulated to result either from biological maturation that is under genetic control or from the interaction of the biological organism with the environment--physical, social, and cultural" (Kandel, 1980, p. 120). Kandel proposes a framework to study drug behavior by observing culturally determined developmental stages. The four stages in this framework include: (1) beer and wine, (2) cigarettes and hard liquor, (3) marijuana, (4) other illicit drugs. It is noted that "the use of a lower drug in a sequence is a necessary but not a sufficient condition for progression to a higher stage indicating

involvement with more serious drugs" (Kandel, 1980, p. 121).

In the study of the initiation of alcohol use, Kandel identifies four clusters of social/psychological factors which contain single predictor variables. The four clusters of factors are parental influences, peer influences, adolescent involvement in various behaviors, adolescent beliefs and values. She notes that the earliest involvement with drugs involves adolescents who have a history of engaging in minor delinquent activities, who have a high level of sociability with peers, and who are exposed to peers and parents who drink. She adds that adolescents who drink usually learn that behavior from their parents. Beer, wine, and cigarette use along with minor delinquency are predictors of hard liquor use. This theory applies to adolescents of both sexes and all ethnic backgrounds.

A Theory of Alcohol and Drug Abuse--A Genetic Approach. Schuckit (1980, p. 297) proposes that genetic factors "leading both toward and away from substance abuse" and environmental events "with similar positive and negative aspects" both have roles in the development of alcoholism and drug abuse. He states that the initiation of alcohol is likely a result of environmental factors. Alcohol use, he notes, usually follows caffeine and tobacco use and is before experimentation with other drugs. Adolescents who drink usually begin this behavior during their early teens, and the practice becomes more routine by the end of high

school. Factors which may influence the initiation of alcohol use may include having parents who use drugs, having a high degree of life instability (such as problems with school or the police), being sensitive to peer pressure, and entering an "exceptionally heavy-drinking environment at a time of heightened stress" (Schuckit, 1980, p. 329). He also adds that the use of alcohol has been regarded as a rite of passage from adolescence to adulthood. This theory applies to all age groups, both genders, and all ethnic groups.

Perceived Effects of Substance Use--A General Theory. The foundation of this theory is that substance use is "often not self-destructive" (Smith, 1980, p. 51). Many who initiate drug use believe that the benefits of occasional use outweigh its risks, and each person has different attitudes, beliefs, and expectations concerning the advantages and disadvantages of substance use. For example, small amounts of alcohol are perceived as "promoting conviviality, enhancing the pleasure of social interaction, and reducing unwanted inhibitions" (Smith, 1980, p. 52).

Smith proposes that the factors that influence the use of substances include the following: the availability of the substance, the type and amount of substance used by peer groups, significant persons such as role models, demographic variables, genetic variables, perceived risks and benefits of use, attitudes, values, and "behavioral propensities"

(personality) (Smith, 1980, p. 53). For example, the availability of substances is often determined by who the adolescent knows and how the supplier perceives the adolescent. In addition, if friends use substances, the availability is greater, the adolescent is more likely to use substances, and the likelihood of early initiation is increased. In addition, if significant others use substances, then adolescents are more likely to initiate substance use and initiate it at an earlier age. This theory applies to youth and adolescents of both genders and all ethnic groups.

Table 1

A Comparison of Variables Found in Selected Theories Concerning Adolescent Alcohol Use

Theory/ Variable	Goodwin	Kandel	Schuckit	Smith	Survey
Genetics	●	●	●	●	
Availability	●			●	●
Peer Influence	●	●	●	●	●
Parental Influence	●	●	●		●
Rebellious	●				
Psychiatric	●				
Antisocial	●	●			
Values/ Beliefs		●		●	
Tobacco Use		●	●		●
Delinquency		●	●		
Life Instability			●	●	
Drinking Environment			●		
Substance Used (Type)		●	●	●	
Substance Used (Amount)				●	
Risks/ Benefits of Use				●	
First Use		●			
Age	●	●	●	●	●

Additional Studies of Variables

Population density and region. There are conflicting studies concerning the effects of living in a rural environment and the use of alcohol. The National Survey on Drug Abuse: Main Findings 1990 (NIDA, 1991) states that residents of nonmetropolitan areas were significantly less likely than residents of small metropolitan areas ($p<.05$ for lifetime, $p.<.001$ for past month and past year) or large metropolitan areas ($p<.001$) to have used alcohol in their lifetime, in the past year, and in the past month. In addition, it was found that residents of the South were less likely than residents of other regions to have used alcohol in their lifetime, in the past year, and in the past month (NIDA, 1991).

Gibbons, Wylie, Echterling, and French (1986) found that rural youth may be "catching up" to their urban peers in drinking (p. 897). Some studies have shown the adolescent living in a rural area has a greater chance of initiating alcohol use because of the higher than national prevalence rates of alcohol use (Reilly, Leukefeld, Gao, & Allen, 1994). It is interesting to note that opinions regarding the decision to use alcohol possibly are made at an earlier age in rural areas (Reilly, Leukefeld, Gao, & Allen, 1994).

Gender. Most of the literature has reported that males are more likely than females to engage in alcohol use.

Gibbons, Wylie, Echterling and French (1986) found that males tend to be heavier drinkers than females, they start drinking at an earlier age, and they also drink greater amounts. Their results agreed with Johnston, O'Malley, and Bachman (1984) who stated that "frequency of alcohol use seems to be disproportionately concentrated among males" (p. 26). The National Household Survey on Drug Abuse: Main Findings 1990 states that "males were more likely than females to have consumed alcohol in the lifetime, in the past year, and in the past month." (NIDA, p. 83). Lifetime, past year, and past month use of alcohol, however, by males and females "did not differ among those aged 12 to 17" (p. 83).

Some studies have shown that the differences in alcohol use between genders is diminishing. Many studies have shown that females have a higher use rate than males in rural areas (Reilly, Leukefeld, Gao, & Allen, 1994). Hechinger (1992) reported that although girls still drink less frequently than boys, the proportion who drink and who report having been intoxicated has increased more rapidly for girls than for boys.

Grade. Johnston, O'Malley, and Bachman (1984) found that most of the initial experiences with alcohol occurred before the high school years. They also stated that adolescents are beginning to use drugs at earlier ages. This fact is disturbing because in a study in rural Rocky

Mountain public schools it was found that early alcohol use is likely to be followed by increasingly higher levels of involvement (Winfree, 1985, p. 509).

Gibbons, Wylie, Echterling, & French (1986) state that older adolescents tend to drink alcohol more frequently, and when they drink, they drink more. They also showed that students in the upper grade levels tend to drink more, and more often than students in grade levels 7-9. In addition, as adolescents advance through school, they are more likely to have had their first drink, will drink more often, and when they do drink, will drink more. In their study, they found 57% of all respondents had their first drink by age 12. Horton confirmed this conclusion with the finding that children are beginning alcohol use at an early age with the average age of initiation being 12.5 years (Horton, 1985, 1988).

The National Household Survey on Drug Abuse: Main Findings 1990 found that "alcohol use was strongly related to age. Among 12- to 13- year olds, 25.9% had ever used alcohol, 19.5% had used it in the past year, and 8.4% had used it in the past month. The rates of use were about 20 percentage points higher among those aged 14 to 15, about another 15 percentage points higher among those aged 16 to 17, and almost another 20 percentage points higher among those aged 18 to 21" (NIDA, 1991, p. 84). This survey also revealed that "substantial proportions of persons under age

21 (the legal age for purchase of alcohol in the United States) have used alcohol in the lifetime, in the past year, or in the past month. Among those aged 12 to 20, some 59.9% reported ever having used alcohol, 52.4% reported use in the past year, and 34.2% reported use in the past month" (p. 85).

Peer influence. Many studies have implicated peer influence, also known as peer pressure, to be one of the strongest predictors of the use of alcohol by adolescents. Grob and de Rios (1992) found that the strongest predictor of substance abuse is having a peer group whose lives are centered around the acquisition and use of alcohol or drugs.

Pruitt, Kingery, Mizraee, Heuberger, and Hurley (1991) studied eighth and tenth grade students in several rural towns in Central/East Texas to determine the students' perceptions regarding the number of friends who used drugs, the amount of information concerning drugs which was obtained from friends, and the connection between these perceptions and actual drug use. They found that students who perceived a higher degree of drug use among friends and who received more information about drugs from their friends tended to use drugs more frequently. They, however, determined that the students' perceptions of their friends' involvement in drugs was a more important factor in predicting their own frequency of drug use. They concluded that peer pressure is related to drug abuse even in rural

areas.

Smart (1980) notes that peer pressure is a "widely accepted reason" for adolescent drinking because people believe that adolescents drink solely or mainly because their friends do. He notes that adolescence is a period when peers increasingly control behavior and parental control seems to decrease. He states that peer pressure is not important in initiating drinking, but after the first experience, sociability and the desire to appear to be an adult are paramount. He concludes that adolescent cliques are usually "drinking or nondrinking cliques rather than mixed," and there is pressure by the group for "deviants" to conform. He does mention the fact that no evidence exists to show that peers make others drink more than they want. He says that it is not certain whether or not peer influences are stronger than parental influences, especially when the parents are abstainers.

Thompson (1989) states that alcohol use has two special functions: 1) to help to improve relations with same-sex agemates and 2) to improve self-esteem. He shows that early alcohol use enhances peer relations only in teens who drink to be a part of the group. He also shows that early alcohol use has a delayed effect on boosting self-esteem in adolescents who "equate drinking with self-esteem" (p. 837).

Tobacco use. Tobacco use has not been implicated as being a risk factor for initiation of alcohol use in many

studies. In a study of alcohol use in elementary students in rural New Hampshire, Stevens, Youells, Whaley, and Linsey (1991) found that experimental and current use of cigarettes, marijuana, and smokeless tobacco was associated with increased alcohol consumption. Scheier and Newcomb (1991) found that cigarette use increased alcohol use over the two year period of their study of early adolescents.

Parental pressure including alcohol use and permissiveness. Halebsky (1987) found that parental drug use influences the drug use of their adolescents. Barnes, Ferrell, and Cairns (1986) found that parental behavior regarding alcohol was a good predictor the use of alcohol by adolescents. This finding is termed "logical" by Napier, Bachtel, and Carter (1983) because children often see their parents as role models and emulate their behavior.

Not only does the actual parental use of the alcohol or drug have an effect on the use of alcohol by adolescents but permissive attitudes toward alcohol use also affect adolescent alcohol use. McDermott (1984) found that adolescents who perceive that their parents have permissive attitudes towards drug use are "significantly more likely" to use drugs than those adolescents who perceive their parents to have less permissive attitudes. When the actual substance use by parents was held constant, it was found that perceived parental attitudes toward drug use was a more important factor than actual parental drug use.

Thompson and Wilsnack (1987) point out that parents influence the drinking of their adolescents by modeling drinking behavior, by expressing attitudes toward their children's drinking, and by conflict with their children that motivates them to drink. They show that imitation of parental behavior has its greatest impact on the initiation of drinking behavior. Parental approval of adolescent drinking is associated with increased alcohol use, but parental disapproval is associated with increased problem drinking in those adolescents who drink. Parental influence depends on the adolescent's age, race, and sex.

Studies Related to Self-Administered Surveys and Alcohol and Drug Use

Perkins and Berkowitz (1986) point out that alcohol surveys have traditionally been used to assess the "extent and range of student drinking behaviors in various campus settings" (p. 44). Their common uses are to gauge the amount and frequency of alcohol use, the motivations for using alcohol, and the negative consequences of using alcohol. The authors assert that although most surveys are used to ascertain descriptive data, they can also have value in clinical and educational areas. Surveys can identify misperceptions that students have about alcohol use by their peers, their family, or the campus as a whole. In addition, the act of filling out a survey may help students to evaluate their drinking behaviors and the role of alcohol in

their lives.

Harrison, Haaga, and Richards (1993) compared responses from two national drug surveys concerning self-reported drug use. They found that the respondents admitted use in the past month, year, and lifetime which were consistent with the declining trend in drug use. They found that most people will provide accurate accounts of their drug use, but underreporting and complete denial does occur. They suggest that self-reporting could be improved by insuring privacy and confidentiality of the data.

Johnston and O'Malley (1986) studied the reasons that high school students gave for using various licit and illicit drugs in a national self-report study. They found that reasons for using drugs vary by age. For alcohol, there is an "adult role-playing" (p. 30) by the use of this age-restricted substance. They also acknowledge the different stages of drug use behavior which have different explanations. In their study, they found self-report surveys can be useful in trying to gain an understanding of drug use in a given population. Large samples, however, are better to replicate outcomes found in other surveys.

Summary

Chapter 2 provided a review of the studies regarding alcohol use in adolescents as well as background information related to the study of alcohol and its use by adolescents. The importance of alcohol in American society, alcohol use

by adolescents and specifically rural adolescents, initiation of alcohol use, and abstinence from alcohol use were topics which were highlighted. Four relevant theories which analyze the initiation of alcohol use in adolescents were also presented. The following variables were identified as being important in the initiation of alcohol use: availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade. Studies regarding self-administered surveys concerning alcohol and drug use were also discussed.

Chapter 3

Methodology

This chapter contains a description of the methods used to complete this study. It includes a statement of the hypothesis, the null hypothesis, the population and sample selection, and the procedures followed. A description of the survey instrument (the Warren County KIDS Team survey) is provided, and the data analysis procedures are discussed.

Research Question

The research question guiding this study was the following:

Do any or all of the following variables predict the initiation of alcohol use in adolescents in rural areas, specifically in students in grades 9-12 in Warren County, Kentucky: availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade?

Hypothesis

Availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade are predictors of the initiation and use of alcohol in rural adolescents. [Specifically having alcohol available, having peer influence to drink, having parental influence to drink,

using tobacco of any kind, being male, and being in a higher grade predict the initiation of alcohol use.]

Null Hypothesis

In rural areas, there is no relationship between the initiation of and use of alcohol and the availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade.

Population and Sample Selection

The population consisted of students enrolled in grades 5-12 in all of the Warren County public schools in Warren County, Kentucky; all students in attendance on the day of the administration of the survey were included in the sample. The sample specifically studied was composed of students in grades 9-12 in April of 1994. High schools were chosen to study because many of the question on the survey are retrospective in nature, and many of the students can remember the first time they used alcohol and why they used it.

The sample students attended one of the following high schools: Greenwood High School, Warren Central High School, or Warren East High School. In Warren County high schools, 2,353 students completed the survey. Because Warren County is a predominantly rural county, it can be assumed that the majority of the students surveyed come from rural backgrounds. This sample is also unique because Warren County, Kentucky, is a dry county and, theoretically, access

to alcohol should be limited.

Research Design

Data from the administration of the survey were previously collected and entered into the mainframe computer. The analysis of the data was done with SPSS. The hypothesis was tested using a chi square analysis. A log-linear analysis was attempted, but the data set was not appropriate for this type of analysis; too many zero values were present in the analysis.

Instrument

The instrument selected to measure the variables was the Warren County Schools KIDS (Knowledge and Information about Drugs and Substances) Team survey. This instrument has been used since 1990. The survey was designed to determine the type of drugs used, the extent of alcohol and/or other drugs use, and the related problems among students in the Warren County School District.

Construction, Validity, and Reliability of the KIDS Survey

The KIDS survey was adopted by Warren County schools in 1990. This survey was provided by Mr. Gary Fields, a consultant from Kennewick, Washington. It was developed by a committee, and the Delphi technique was used when it was created. This survey has been administered each year by the school district since 1990, and each year the survey has been modified. Some of the modifications have included the addition of questions regarding violence. There are two

separate surveys given to the students. One version is given to grades 5-6. Another version is given to grade 7-12.

The validity of the survey has not been formally measured. The only measure of its validity is face validity. Test-retest reliability was measured in 1993. The survey was administered to eighty-eight subjects twice during one week. The result was a Pearson Correlation Coefficient of 0.663 for the entire survey.

Data Collection Procedures

The data from this survey are collected annually on one selected day of class to students who are enrolled in grades 5-12 in all of the public schools in Warren County, Kentucky. The survey is administered by teachers to students who are present on the day of administration. No attempt is made to give the survey to students who are absent on the day of administration. Students attending the alternative school for students with behavioral problems are also not included. Each student voluntarily participates in the survey. The students are instructed to skip any question which they or their parents may find offensive. They are also told that there are no right or wrong answers, that they should be as honest as possible, and that their responses are very important. The students are told that the survey is completely anonymous.

Data Analysis

Data from the survey administered in 1994 were the only data analyzed. In addition, only the data from students in grades 9-12 were used. These data were collected from 2,353 students. Data were analyzed using a chi square analysis on SPSS. The survey for grades 9-12 contained 58 items. Only 17 of the items were chosen for analysis because of their relevance to the research question. Some of the questions were re-coded for the analysis.

Summary

Chapter 3 provided a discussion of the methodology used to analyze the research question. The research question, hypothesis, and null hypothesis were stated. The instrument used for data collection, the Warren County KIDS Team survey was discussed. The population was identified as being students attending public schools in Warren County, Kentucky, and the sample used was students in grades 9-12 who responded to the survey in 1994. The use of chi square as the data analysis procedure was explained.

Chapter 4

Results

The purpose of this study was to determine factors which may predict alcohol use in adolescents in rural areas. The incidence of alcohol use in rural areas was also studied. Data were collected with the Warren County KIDS survey in April of 1994 in students in grades 5-12. The sample studied was students in grades 9-12. The data were entered into the mainframe computer at Western Kentucky University and analyzed with SPSS. Using SPSS, chi square values were computed to determine the relationships between the variables. The three dependent variables were the following:

Question 11: When was the first time that you drank more than just a few sips of alcohol (beer, wine, wine coolers, or liquor)?

Question 13: How many times have you had alcohol to drink in your lifetime? (More than a few sips.)

Question 14: How many times, if any, have you had alcohol to drink in the last 30 days? (More than a few sips.).

The relationship of each of the independent variables was computed with one of the dependent variables to determine

which factors predict the initiation of alcohol use in rural adolescents. Question 13 was removed from the analysis after the results were determined to be redundant compared to the results for question 14.

A log-linear analysis was attempted but the nature of the data prohibited the completion of the analysis. The survey which was used to collect the data was not created for research purposes; therefore, the types of statistical analyses which could be completed were limited. The main problem with the data was that some of the variables studied were continuous and others were dichotomous. In order to study the interactions between both types of data, log-linear was the preferred method. This analysis could not be done because the sample size was too small, and there were too many zero values present in the analysis.

This chapter consists of the chi square data. After each table, there is an explanation of the conclusions which can be drawn from the analysis. Following the presentation of the data, an explanation of the hypothesis testing is given.

Description of the Data Set

A total of 2,353 students completed the Warren County KIDS Team Survey. Of the students responding to the survey, 1,162 (49.4%) were female, 1,023 (43.5%) were male, and 768 (7.1%) were missing values for gender. In regard to grade level, 688 (29.2%) were in grade 9, 660 (28.0%) were in

grade 10, 482 (20.5%) were in grade 11, and 445 (18.9%) were in grade 12. 78 values (3.3%) were missing for grade.

In order to analyze the data, some questions were re-coded. The reason for re-coding the questions was to have more balanced cells in the chi square analysis. Appendix B contains an explanation of the re-coding procedures.

Frequency Analyses

The initiation and frequency of drinking by students in the sample are shown in Tables 2, 3, and 4. The frequency of responses as well as the percent and cumulative percent of the responses are presented.

Table 2

Grade Level When Drinking First Occurred in High School Students, Warren County Schools, 1994

Response	Frequency	Percent	Cumulative Percent
Never	818	34.8	34.8
Grade ≤ 7	552	23.5	58.3
Grade ≥ 8	979	41.7	100.0

Table 2 shows that 34.8% of the students never drank alcohol. The table also shows that 23.5% began drinking before or during the seventh grade. The remainder of the students, 41.7%, began drinking during or after the eighth grade.

Table 3

Lifetime Drinking Experience in High School Students, Warren County Schools, 1994

Response	Frequency	Percent	Cumulative Percent
Never	978	41.7	41.7
3-20 Times	681	29.0	70.7
≥ 21 Times	688	29.3	100.

Table 3 shows that 41.7% of the students never drank in their lifetime. The table also shows that 29.0% of the students drank from 3 to 5 times and that 29.3% drank 21 or more times in their lifetime.

Table 4

Frequency of Drinking in the Last 30 Days in High School Students, Warren County Schools, 1994

Response	Frequency	Percent	Cumulative Percent
Never	1744	74.3	74.3
3-20 Times	380	16.2	90.5
≤ 21 Times	224	9.5	100.0

Table 4 shows that 74.3% of the students never drank in the last 30 days. The table also shows that 16.2% drank from 3 to 20 times and that 9.5% drank 21 or more times in the last 30 days.

Chi Square Analyses

In order to explain the relationships between the dependent and independent variables, the chi square values were calculated. Tables 5 through 36 present the results of these analyses.

Table 5

The Chi Square Results of the Relationship Between Grade of Drinking Initiation and Family Environment

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Family Environment	Mother	561 40.4 68.7	270 19.4 48.9	559 40.2 57.2	1390 59.2
	Mother	110 29.4 13.5	110 29.4 19.9	154 41.2 15.8	374 15.9
	Father	31 29.2 3.8	28 26.4 5.1	47 44.3 4.8	106 4.5
	Natural & Step Parent	91 27.2 11.1	85 25.4 15.4	159 47.5 16.3	335 14.3
	Other	24 17.0 2.9	59 41.8 10.7	58 41.1 5.9	141 6.0
	Column Total	817 34.8	552 23.5	977 41.6	2346 100.0

Chi-Square	Value	DF	Significance
Pearson	74.83183	8	.00000
Likelihood Ratio	74.21191	8	.00000
Mantel-Haenszel	23.27529	1	.00000
Minimum Expected Frequency -	24.941		

Number of Missing Observations: 7

Table 5 shows that significantly more students never drank or waited until they were in the eighth grade or later to drink if they lived with their natural mother and father.

Table 6

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Family Environment

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Family Environment	Mother	1072 77.2 61.5	270 19.4 54.9	47 3.4 42.3	1389 59.2
	Mother	273 73.0 15.7	83 22.2 16.9	18 4.8 16.2	374 15.9
	Father	62 58.5 3.6	37 34.9 7.5	7 6.6 6.3	106 4.5
	Natural & Step	253 75.5 14.5	69 20.6 14.0	13 3.9 11.7	335 14.3
	Other	82 58.2 4.7	33 23.4 6.7	26 18.4 23.4	141 6.0
	Column Total	1742 74.3	492 21.0	111 4.7	2345 100.0

Chi-Square	Value	DF	Significance
Pearson	84.87494	8	.00000
Likelihood Ratio	60.55708	8	.00000
Mantel-Haenszel	28.75531	1	.00000
Minimum Expected Frequency -	5.017		

Number of Missing Observations: 8

Table 6 shows that significantly more students did not drink in the last 30 days if they lived with their mother and father, their mother, or with natural and step parents.

Table 7

The Chi Square Results of the Relationship Between Grade of Drinking Initiation and Smoking in the Last 30 Days

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Smoking in Last 30 Days	Never	750 46.5 92.5	267 16.6 51.3	596 36.9 62.3	1613 70.5
	Not Regular	26 11.9 3.2	70 32.0 13.5	123 56.2 12.9	219 9.6
	Daily	35 7.7 4.3	183 40.2 35.2	237 52.1 24.8	455 19.9
	Column Total	811 35.5	52 22.7	956 41.8	2287 100.0

Chi-Square	Value	DF	Significance
Pearson	316.60445	4	.00000
Likelihood Ratio	359.34906	4	.00000
Mantel-Haenszel	161.85283	1	.00000

Minimum Expected Frequency - 49.794

Number of Missing Observations: 66

Table 7 shows that all students were significantly more likely to begin using alcohol in the eighth grade or later. Students who began using alcohol in grade 7 or earlier were more likely to have smoked daily in the last 30 days. Students who did not smoke in the last 30 days were more likely to have never used alcohol.

Table 8

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Smoking in Last 30 Days

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Smoking in Last 30 Days	Never	1391 86.2 81.0	189 11.7 39.9	33 2.0 34.7	1613 70.5
	Not Regular	117 53.4 6.8	93 42.5 19.6	9 4.1 9.5	219 9.6
	Daily	210 46.2 12.2	192 42.2 40.5	53 11.6 55.8	455 19.9
	Column Total	1718 75.1	474 20.7	95 4.2	2287 100.0

Chi-Square	Value	DF	Significance
Pearson	384.16998	4	.00000
Likelihood Ratio	352.82109	4	.00000
Mantel-Haenszel	335.53968	1	.00000
Minimum Expected Frequency -	9.097		

Number of Missing Observations: 66

Table 8 shows that significantly more students who smoked daily in the last 30 days used alcohol 21 or more times in the last 30 days. Students who never smoked in the last 30 days were likely to have not used alcohol in the last 30 days.

Table 9

The Chi Square Results of the Relationship Between Grade of Drinking Initiation and Chewing Tobacco or Snuff Use in the Last 30 Days

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Chewing Tobacco/ Snuff Use in Past 30 Days	Never	781 38.1 96.1	423 20.6 79.1	845 41.2 87.5	2049 88.5
	Not Regular	18 15.0 2.2	47 39.2 8.8	55 45.8 5.7	120 5.2
	Daily	14 9.7 1.7	65 44.8 12.1	66 45.5 6.8	145 6.3
	Column Total	813 35.1	535 23.1	966 41.7	2314 100.0

Chi-Square	Value	DF	Significance
Pearson	95.27379	4	.00000
Likelihood Ratio	101.31922	4	.00000
Mantel-Haenszel	27.03600	1	.00000
Minimum Expected Frequency -	27.744		

Number of Missing Observations: 39

Table 9 shows that significantly more students who never used chewing tobacco or snuff in the last 30 days were more likely never to begin drinking. Also, significantly more students who used chewing tobacco or snuff daily had initiated drinking.

Table 10

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Chewing Tobacco or Snuff Use in the Last 30 Days

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Chewing Tobacco/ Snuff Use in Last 30 Days	Never	1628 79.5 93.8	376 18.4 78.3	45 2.2 45.9	2049 88.6
	Not Regular	53 44.2 3.1	51 42.5 10.6	16 13.3 16.3	120 5.2
	Daily	54 37.5 3.1	53 36.8 11.0	37 25.7 37.8	144 6.2
	Column Total	1735 75.0	480 20.8	98 4.2	2313 100.0

Chi-Square	Value	DF	Significance
Pearson	298.60969	4	.00000
Likelihood Ratio	208.60645	4	.00000
Mantel-Haenszel	260.48926	1	.00000

Minimum Expected Frequency - 5.084

Number of Missing Observations: 40

Table 10 shows that significantly more students who never used alcohol in the last 30 days were likely to have not used chewing tobacco or snuff in the last 30 days. Those who had used chewing tobacco daily were much more likely to have used alcohol 21 or more times.

Table 11

The Chi Square Results of the Relationship Between Grade of Drinking Initiation and Peer Pressure Initiation

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Initiation of Peer Pressure	Never	539 45.4 66.0	256 21.5 46.5	393 33.1 40.1	1188 50.6
	Gr ≤7	79 23.7 9.7	181 54.2 32.9	74 22.2 7.6	334 14.2
	Gr ≥8	199 24.2 24.4	113 13.7 20.5	512 62.1 52.3	824 35.1
	Column Total	817 34.8	550 23.4	979 41.7	2346 100.0

Chi-Square	Value	DF	Significance
Pearson	380.83964	4	.00000
Likelihood Ratio	348.67828	4	.00000
Mantel-Haenszel	157.47846	1	.00000

Minimum Expected Frequency - 78.303

Number of Missing Observations: 7

Table 11 shows that significantly more students who experienced peer pressure to drink began drinking at the time they began to experience the peer pressure. Those that had not had peer pressure to drink were most likely to have not used alcohol.

Table 12

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and the Initiation of Peer Pressure

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Initiation of Peer Pressure	Never	955 80.3 54.8	194 16.3 39.5	40 3.4 36.0	1189 50.7
	Gr ≤7	214 64.1 12.3	82 24.6 16.7	38 11.4 34.2	334 14.2
	Gr ≥8	574 69.8 32.9	215 26.2 43.8	33 4.0 29.7	822 35.1
	Column Total	1743 74.3	491 20.9	111 4.7	2345 100.0

Chi-Square	Value	DF	Significance
Pearson	74.35994	4	.00000
Likelihood Ratio	66.30196	4	.00000
Mantel-Haenszel	23.49364	1	.00000

Minimum Expected Frequency - 15.810

Number of Missing Observations: 8

Table 12 shows that significantly more students who experienced peer pressure at grade 8 or later were more likely never to have used alcohol in the last 30 days. However, students who never experienced peer pressure were the most likely to have never used alcohol.

Table 13

The Chi Square Results of the Relationship Between Grade of Drinking Initiation and Parental Permission to Have a Teen Party with Alcohol

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Permission to Have Teen Party	Yes	72 24.9 8.9	111 38.4 20.8	106 36.7 11.1	289 12.6
	No	739 36.7 91.1	422 21.0 79.2	852 42.3 88.9	2013 87.4
	Column Total	811 35.2	533 23.2	958 41.6	2302 100.0

Chi-Square	Value	DF	Significance
Pearson	45.13584	2	.00000
Likelihood Ratio	41.47131	2	.00000
Mantel-Haenszel	1.25042	1	.26347

Minimum Expected Frequency - 66.914

Number of Missing Observations: 51

Table 13 shows that significantly more students whose parents would not allow them to have a teen party where alcohol was being served were more likely to begin drinking in grade 8 or later or to have never used alcohol.

Table 14

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Parental Permission to Have a Teen Party with Alcohol

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Permission to Have Teen Party	Yes	148 51.2 8.6	91 31.5 19.1	50 17.3 47.6	289 12.6
	No	1572 78.1 91.4	386 19.2 80.9	55 2.7 52.4	2013 87.4
	Column Total	1720 74.7	477 20.7	105 4.6	2302 100.0

Chi-Square	Value	DF	Significance
Pearson	160.52782	2	.00000
Likelihood Ratio	120.32315	2	.00000
Mantel-Haenszel	144.38251	1	.00000
Minimum Expected Frequency -	13.182		

Number of Missing Observations: 51

Table 14 shows that significantly more students whose parents would not let them have a teen party where alcohol was being served were more likely to have never used alcohol. Those whose parents would allow such a party were six times more likely to have used alcohol 21 or more times in the last 30 days.

Table 15

The Chi Square Results of the Relationship Between Initiation of Alcohol Use and Where Adolescents Get Alcohol

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Where Adolescents Get Alcohol	Never	728 81.2 89.1	58 6.5 10.9	111 12.4 11.5	897 38.7
	Home	23 13.9 2.8	64 38.6 12.0	79 47.6 8.2	166 7.2
	Friends	44 4.7 5.4	270 28.7 50.6	627 66.6 65.0	941 40.6
	Buy It	11 9.4 1.3	59 50.4 11.0	47 40.2 4.9	117 5.1
	Other	11 5.6 1.3	83 42.6 15.5	101 51.8 10.5	195 8.4
	Column Total	817 35.3	534 23.1	965 41.7	2316 100.0

Chi-Square	Value	DF	Significance
Pearson	1416.71306	8	.00000
Likelihood Ratio	1534.13567	8	.00000
Mantel-Haenszel	772.11999	1	.00000

Minimum Expected Frequency - 26.977

Number of Missing Observations: 37

Table 15 shows that students who drank were most likely to have gotten alcohol from friends and were significantly more likely to have begun using alcohol in grade 8 or later.

Table 16

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Where Adolescents Get Alcohol

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Where Adolescents Get Alcohol	Never	888 98.9 51.2	6 .7 1.3	4 .4 3.8	898 38.8
	Home	122 73.5 7.0	41 24.7 8.6	3 1.8 2.9	166 7.2
	Friends	578 61.4 33.4	323 34.3 67.4	40 4.3 38.5	941 40.6
	Buy It	36 30.8 2.1	48 41.0 10.0	33 28.2 31.7	117 5.1
	Other	109 56.2 6.3	61 31.4 12.7	24 12.4 23.1	194 8.4
	Column Total	1733 74.8	479 20.7	104 4.5	2316 100.0

Chi-Square	Value	DF	Significance
Pearson	634.49674	8	.00000
Likelihood Ratio	695.19889	8	.00000
Mantel-Haenszel	425.99029	1	.00000
Minimum Expected Frequency -	5.254		

Number of Missing Observations: 37

Table 16 shows that students who used alcohol 3-20 times were likely to have gotten it from friends, and those who drank 21 or more times most likely bought it.

Table 17

The Chi Square Results of the Relationship Between Grade of Drinking Initiation and Parental Concern About Drinking

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Parental Concern About Drinking	Little	83 23.9 10.2	139 39.9 25.3	126 36.2 12.9	348 14.9
	Moderate	134 19.5 16.4	208 30.2 37.9	346 50.3 35.4	688 29.4
	Extreme	599 45.9 73.4	202 15.5 36.8	505 38.7 51.7	1306 55.8
	Column Total	816 34.8	549 23.4	977 41.7	2342 100.0

Chi-Square	Value	DF	Significance
Pearson	211.18582	4	.00000
Likelihood Ratio	213.53900	4	.00000
Mantel-Haenszel	42.83398	1	.00000

Minimum Expected Frequency - 81.576

Number of Missing Observations: 11

Table 17 shows that significantly more students whose parents would be extremely concerned never drank, and when they did drink, it was in grade 8 or later.

Table 18

The Chi Square Results of the Relationship Between Alcohol Use in the Past 30 Days and Parental Concern About Drinking

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Parental Concern About Drinking	Little	187 53.7 10.7	108 31.0 22.0	53 15.2 48.2	348 14.9
	Moderate	447 65.1 25.7	221 32.2 44.9	19 2.8 17.3	687 29.3
	Extreme	1106 84.6 63.6	163 12.5 33.1	38 2.9 34.5	1307 55.8
	Column Total	1740 74.3	492 21.0	110 4.7	2342 100.0

Chi-Square	Value	DF	Significance
Pearson	245.72927	4	.00000
Likelihood Ratio	218.84961	4	.00000
Mantel-Haenszel	184.14278	1	.00000

Minimum Expected Frequency - 16.345

Number of Missing Observations: 11

Table 18 shows that significantly more students whose parents would be extremely concerned were likely to have never used alcohol in the last 30 days.

Table 19

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and Knowledge of Ability to Buy Alcohol or Drugs at School

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Buy Alcohol/ Drugs at School	Don't Know	350 49.4 43.3	95 13.4 18.2	263 37.1 27.4	708 30.9
	Yes	409 28.2 50.6	397 27.4 76.2	643 44.4 67.0	1449 63.3
	No	49 37.1 6.1	29 22.0 5.6	54 40.9 5.6	132 5.8
	Column Total	808 35.3	521 22.8	960 41.9	2289 100.0

Chi-Square	Value	DF	Significance
Pearson	107.57645	4	.00000
Likelihood Ratio	108.63288	4	.00000
Mantel-Haenszel	31.76795	1	.00000
Minimum Expected Frequency -	30.045		

Number of Missing Observations: 64

Table 19 shows that significantly more students who knew that they could buy alcohol or other drugs at school were more likely to begin drinking in grade 7 or earlier.

Table 20

The Chi Square Results of the Relationship Between Alcohol Use in the Past 30 Days and Knowledge of Ability to Buy Drugs or Alcohol at School

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Buy Alcohol/ Drugs at School	Don't Know	620 87.6 36.2	75 10.6 15.9	13 1.8 12.5	708 30.9
	Yes	998 68.9 58.3	369 25.5 78.0	82 5.7 78.8	1449 63.3
	No	94 71.2 5.5	29 22.0 6.1	9 6.8 8.7	132 5.8
	Column Total	1712 74.8	473 20.7	104 4.5	2289 100.0

Chi-Square	Value	DF	Significance
Pearson	90.38694	4	.00000
Likelihood Ratio	99.13025	4	.00000
Mantel-Haenszel	66.06075	1	.00000
Minimum Expected Frequency -	5.997		

Number of Missing Observations: 64

Table 20 shows that significantly more students who knew that they could buy alcohol or other drugs at school were more likely to have used alcohol in the last 30 days.

Table 21

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and Knowledge of a Drinking or Drug Problem in Parent, Guardian, Brother or Sister

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Drinking/ Drug Problem in Parent, Guardian, Brother, or Sister	Yes	113 25.0 13.8	130 28.8 23.6	209 46.2 21.3	452 19.2
	No	705 37.2 86.2	422 22.2 76.4	770 40.6 78.7	1897 80.8
	Column Total	818 34.8	552 23.5	979 41.7	2349 100.0

Chi-Square	Value	DF	Significance
Pearson	24.89808	2	.00000
Likelihood Ratio	25.80371	2	.00000
Mantel-Haenszel	15.22637	1	.00010
Minimum Expected Frequency -	106.217		

Number of Missing Observations: 4

Table 21 shows that significantly more students who did not know of a drinking or drug problem in a parent, guardian, brother, or sister were most likely to have never used alcohol.

Table 22

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Knowledge of a Drinking or Drug Problem in Parent, Guardian, Brother or Sister

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Drinking/ Drug Problem in Parent, Guardian, Brother or Sister	Yes	320 70.8 18.3	103 22.8 20.9	29 6.4 26.1	452 19.3
	No	1424 75.1 81.7	390 20.6 79.1	82 4.3 73.9	1896 80.7
	Column Total	1744 74.3	493 21.0	111 4.7	2348 100.0

Chi-Square	Value	DF	Significance
Pearson	5.14336	2	.07641
Likelihood Ratio	4.87897	2	.08721
Mantel-Haenszel	4.87828	1	.02720
Minimum Expected Frequency	21.368		

Number of Missing Observations: 5

Table 22 shows that there is no significant relationship between these variables because $p > .05$.

Table 23

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and the Knowledge of a Drinking or Drug Problem in a Member of the School Staff

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Drinking/ Drug Problem in School Staff	Yes	58 24.2 7.1	90 37.5 16.3	92 38.3 9.4	240 10.2
	No	760 36.0 92.9	462 21.9 83.7	887 42.1 90.6	2109 89.8
	Column Total	818 34.8	552 23.5	979 41.7	2349 100.0

Chi-Square	Value	DF	Significance
Pearson	31.73222	2	.00000
Likelihood Ratio	29.64564	2	.00000
Mantel-Haenszel	1.87930	1	.17041
Minimum Expected Frequency -	56.398		

Number of Missing Observations: 4

Table 23 shows that significantly more students who did not know of a drinking or drug problems in a member of the school staff were more likely to have never used alcohol or to have begun using it in grade 8 or later.

Table 24

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and the Knowledge of a Drinking or Drug Problem in a Member of the School Staff

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Drinking/ Drug Problem in School Staff	Yes	133 55.4 7.6	75 31.3 15.2	32 13.3 28.8	240 10.2
	No	1611 76.4 92.4	418 19.8 84.8	79 3.7 71.2	2108 89.8
	Column Total	1744 74.3	493 21.0	111 4.7	2348 100.0

Chi-Square	Value	DF	Significance
Pearson	68.06616	2	.00000
Likelihood Ratio	55.39740	2	.00000
Mantel-Haenszel	65.79982	1	.00000
Minimum Expected Frequency -	11.346		

Number of Missing Observations: 5

Table 24 shows that significantly more students who did not know of a drinking or drug problem in the school staff were most likely to have never used alcohol in the last 30 days.

Table 25

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and Knowledge of a Drinking or Drug Problem in Another Relative

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Drinking/ Drug Problem in Relative	Yes	151 32.8 18.5	132 28.6 23.9	178 38.6 18.2	461 19.6
	No	667 35.3 81.5	420 22.2 76.1	801 42.4 81.8	1888 80.4
	Column Total	818 34.8	552 23.5	979 41.7	2349 100.0

Chi-Square	Value	DF	Significance
Pearson	8.43149	2	.01476
Likelihood Ratio	8.14938	2	.01700
Mantel-Haenszel	.07498	1	.78422
Minimum Expected Frequency	108.332		

Number of Missing Observations: 4

Table 25 shows that significantly more students that did not know of a drinking problem in another relative began drinking in the eighth grade or later.

Table 26

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Knowledge of a Drinking or Drug Problem in Another Relative

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Drinking/ Drug Problem in Relative	Yes	347 75.3 19.9	89 19.3 18.1	25 5.4 22.5	461 19.6
	No	1397 74.0 80.1	404 21.4 81.9	86 4.6 77.5	1887 80.4
	Column Total	1744 74.3	493 21.0	111 4.7	2348 100.0

Chi-Square	Value	DF	Significance
Pearson	1.44451	2	.48566
Likelihood Ratio	1.44080	2	.48656
Mantel-Haenszel	.01680	1	.89687
Minimum Expected Frequency -	21.793		

Number of Missing Observations: 5

Table 26 shows that there is no significant relationship between these variables because of $p>.05$.

Table 27

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and Knowledge of a Drinking or Drug Problem in a Friend

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Drinking/ Drug Problem in a Friend	Yes	328 30.1 40.1	283 25.9 51.3	480 44.0 49.0	1091 46.4
	No	490 39.0 59.9	269 21.4 48.7	499 39.7 51.0	1258 53.6
	Column Total	818 34.8	552 23.5	979 41.7	2349 100.0

Chi-Square	Value	DF	Significance
Pearson	21.04058	2	.00003
Likelihood Ratio	21.13773	2	.00003
Mantel-Haenszel	13.41828	1	.00025
Minimum Expected Frequency	256.378		

Number of Missing Observations: 4

Table 27 shows that significantly more students who knew of a friend with a drinking or drug problem were more likely to have begun drinking at grade 7 or earlier. Also, significantly more students who did not know of a friend with a drinking or drug problem never drank.

Table 28

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Knowledge of a Drinking or Drug Problem in a Friend

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Drinking/ Drug Problem in Friend	Yes	776 71.1 44.5	263 24.1 53.3	53 4.9 47.7	1092 46.5
	No	968 77.1 55.5	230 18.3 46.7	58 4.6 52.3	1256 53.5
	Column Total	1744 74.3	493 21.0	111 4.7	2348 100.0

Chi-Square	Value	DF	Significance
Pearson	12.17626	2	.00227
Likelihood Ratio	12.15093	2	.00230
Mantel-Haenszel	7.42988	1	.00641
Minimum Expected Frequency -	51.624		

Number of Missing Observations: 5

Table 28 shows that significantly more students who knew of a friend with a drinking or drug problem were more likely to have used alcohol 3-20 times in the last 30 days. Those who did not have a friend with a drinking or drug problem were more likely to have never used alcohol.

Table 29

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and Knowing Anyone with a Drinking or Drug Problem

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Drinking/ Drug Problem in Anyone	No	300 43.9 36.7	125 18.3 22.6	258 37.8 26.4	683 29.1
	Yes	518 31.1 63.3	427 25.6 77.4	721 43.3 73.6	1666 70.9
	Column Total	818 34.8	552 23.5	979 41.7	2349 100.0

Chi-Square	Value	DF	Significance
Pearson	37.49390	2	.00000
Likelihood Ratio	37.11908	2	.00000
Mantel-Haenszel	21.40733	1	.00000
Minimum Expected Frequency -	160.501		

Number of Missing Observations: 4

Table 29 shows that significantly more students who knew someone with a drinking or drug problem were most likely to have begun drinking at grade 7 or earlier.

Table 30

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Knowing Anyone with a Drinking or Drug Problem

		Alcohol Use in the Last 30 Days			
	Count I Row Pct I Col Pct I	Never	3-20	≥21	Row Total
Drinking/ Drug Problem in Anyone	No	550 80.6 31.5	109 16.0 22.1	23 3.4 20.7	682 29.0
	Yes	1194 71.7 68.5	384 23.0 77.9	88 5.3 79.3	1666 71.0
	Column Total	1744 74.3	493 21.0	111 4.7	2348 100.0

Chi-Square	Value	DF	Significance
Pearson	20.49220	2	.00004
Likelihood Ratio	21.30212	2	.00002
Mantel-Haenszel	18.71249	1	.00002

Minimum Expected Frequency - 32.241

Number of Missing Observations: 5

Table 30 shows that significantly more students who knew someone with a drinking or drug problem were likely to have used alcohol in the last 30 days.

Table 31

The Chi Square Results of the Relationship of Grade of Initiation of Alcohol Use and How Many Times Parents Discussed Alcohol or Other Drugs with Adolescent

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Discussion of Alcohol	Never	290 37.7 36.2	179 23.2 33.5	301 39.1 31.0	770 33.4
	Few Times	242 31.2 30.2	174 22.5 32.6	359 46.3 37.0	775 33.6
	Many Times	269 35.4 33.6	181 23.8 33.9	310 40.8 32.0	760 33.0
	Column Total	801 34.8	534 23.2	970 42.1	2305 100.0

Chi-Square	Value	DF	Significance
Pearson	10.30200	4	.03564
Likelihood Ratio	10.28724	4	.03586
Mantel-Haenszel	.80882	1	.36847
Minimum Expected Frequency -	176.069		

Number of Missing Observations: 48

Table 31 shows that students who began drinking at grade 7 or earlier were equally likely to have never discussed as to have discussed it a few or many times with their parents. Students who discussed alcohol with their parents a few or many times were more likely to have begun using alcohol in grade 8 or later.

Table 32

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and How Many Times Parents Discussed Alcohol or Other Drugs with Adolescent

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Discussion of Alcohol	Never	576 74.8 33.6	147 19.1 30.2	47 6.1 44.8	770 33.4
	Few Times	572 73.9 33.4	177 22.9 36.4	25 3.2 23.8	774 33.6
	Many Times	566 74.4 33.0	162 21.3 33.3	33 4.3 31.4	761 33.0
	Column Total	1714 74.4	486 21.1	105 4.6	2305 100.0

Chi-Square	Value	DF	Significance
Pearson	9.79491	4	.04403
Likelihood Ratio	9.75852	4	.04470
Mantel-Haenszel	.22866	1	.63252
Minimum Expected Frequency -	34.666		

Number of Missing Observations: 48

Table 32 shows that significantly more students whose parents had never discussed alcohol or other drugs with them were most likely to have used alcohol 21 or more times in the last 30 days.

Table 33

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and Grade

Grade	Count / Row Pct / Col Pct	Grade of Drinking Initiation: Never	Gr≤7	Gr≥8	Row Total
9		286	175	226	687
		41.6	25.5	32.9	30.2
		35.8	33.3	23.8	
10		250	142	267	659
		37.9	21.5	40.5	29.0
		31.3	27.0	28.1	
11		131	121	230	482
		27.2	25.1	47.7	21.2
		16.4	23.0	24.2	
12		131	88	226	445
		29.4	19.8	50.8	19.6
		16.4	16.7	23.8	
Column Total		798	526	949	2273
		35.1	23.1	41.8	100.0

Chi-Square	Value	DF	Significance
Pearson	53.80426	6	.00000
Likelihood Ratio	54.59953	6	.00000
Mantel-Haenszel	43.92984	1	.00000
Minimum Expected Frequency -	102.978		

Number of Missing Observations: 80

Table 33 shows that significantly more students in the ninth grade were more likely to have never used alcohol. If they used alcohol they were more likely to begin using at grade 7 or earlier. Students in grades 10, 11, and 12 were most likely to begin to use alcohol in grade 8 or later.

Table 34

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Grade

Grade	Count / Row Pct / Col Pct	Alcohol Use in the Last 30 Days: Never	3-20	≥21	Row Total
9		552	110	24	686
		80.5	16.0	3.5	30.2
		32.4	23.6	23.3	
10		519	110	31	660
		78.6	16.7	4.7	29.0
		30.5	23.6	30.1	
11		328	135	19	482
		68.0	28.0	3.9	21.2
		19.2	29.0	18.4	
12		305	111	29	445
		68.5	24.9	6.5	19.6
		17.9	23.8	28.2	
Column Total		1704	466	103	2273
		75.0	20.5	4.5	100.0

Chi-Square	Value	DF	Significance
Pearson	44.31909	6	.00000
Likelihood Ratio	43.31554	6	.00000
Mantel-Haenszel	27.52302	1	.00000
Minimum Expected Frequency -	20.165		

Number of Missing Observations: 80

Table 34 shows that alcohol use in the last 30 days increased with grade level.

Table 35

The Chi Square Results of the Relationship Between Grade of Initiation of Alcohol Use and Gender

		Grade of Drinking Initiation			
	Count / Row Pct / Col Pct	Never	Gr≤7	Gr≥8	Row Total
Gender					
Female		406	240	514	1160
		35.0	20.7	44.3	53.1
		52.6	47.2	57.0	
Male		366	269	388	1023
		35.8	26.3	37.9	46.9
		47.4	52.8	43.0	
Column Total		772	509	902	2183
		35.4	23.3	41.3	100.0

Chi-Square	Value	DF	Significance
Pearson	12.77821	2	.00168
Likelihood Ratio	12.78124	2	.00168
Mantel-Haenszel	3.64918	1	.05610
Minimum Expected Frequency -	238.528		

Number of Missing Observations: 170

Table 35 shows that significantly more females were more likely to have begun using alcohol in grade 8 or later. Males were more likely to begin using alcohol at grade 7 or earlier.

Table 36

The Chi Square Results of the Relationship Between Alcohol Use in the Last 30 Days and Gender

		Alcohol Use in the Last 30 Days			
	Count / Row Pct / Col Pct	Never	3-20	≥21	Row Total
Gender	Female	931 80.2 56.7	207 17.8 46.0	23 2.0 25.3	1161 53.2
	Male	711 69.6 43.3	243 23.8 54.0	68 6.7 74.7	1022 46.8
	Column Total	1642 75.2	450 20.6	91 4.2	2183 100.0

Chi-Square	Value	DF	Significance
Pearson	45.94461	2	.00000
Likelihood Ratio	46.85364	2	.00000
Mantel-Haenszel	43.95379	1	.00000
Minimum Expected Frequency	42.603		

Number of Missing Observations: 170

Table 36 shows that females were significantly more likely to have not used alcohol in the last 30 days. Males were more likely to have used alcohol 3-20 times and 21 or more times in the last 30 days.

Summary of Results

Frequency of Alcohol Use

In regard to initiation of alcohol use, 23.5% of the students began drinking in grade 7 or earlier, while 41.6% of the students began drinking in grade 8 or later. It was also shown that 41.7% of the students never drank in their lifetime, while 74.3% never drank in the last 30 days.

Chi Square Analyses

Using chi square analyses, all but two of the variables studied were found to be significant. The dependent variable of lifetime drinking and in the independent variables of lifetime smoking and chewing tobacco and snuff use were not included in the results because the analysis showed the same results as the analyses of these variables according to use of the substances in the last 30 days. A synopsis of the results of the chi square analysis are presented. The results are grouped by the variable being analyzed.

Availability of alcohol. When analyzing the question "Where do you most often get the alcohol that you drink?" students were most likely to have gotten alcohol from their friends. Students who used alcohol 21 or more times in the last 30 days most likely bought it.

The question "Is it possible to buy alcohol or other drugs (not including tobacco) in school or on school grounds?" showed that adolescents who knew that alcohol was

available were more likely to have begun drinking in grade 7 or earlier. Significantly more students who knew that alcohol was available were more likely to have used alcohol in the last 30 days.

Peer pressure. The fact that most students get alcohol from their friends shows that peer pressure is an important factor in alcohol use. When students responded to the question "At what grade did you first feel influenced or pressure by others to drink?" students who never felt peer pressure were more likely to have never used alcohol. Students who felt peer pressure were likely to begin using alcohol at the time the peer pressure began. Students who felt peer pressure in grade 8 or later were more likely to have never used alcohol in the last 30 days. Students who never experienced peer pressure, however, were most likely to have never used alcohol.

In response to the question "Do you know someone close to you that has a drinking or drug problem?," students who answered that they knew of a friend with a drinking or a drug problem were most likely to have begun drinking at grade 7 or earlier. Students who did not know a friend with an alcohol or drug problem were likely to have never used alcohol. Those who knew of a friend with a drinking or drug problem were most likely to have used alcohol 3-20 times in the last 30 days. Overall, students who did not know of a friend with a drinking or drug problem never used alcohol.

Parental pressure. The question "With whom do you live?" was included in this variable because parents must have contact with their children in order to influence them. Significantly more students who lived with both their natural mother and father did not drink or waited until they were in the eighth grade or later to drink. Significantly more students were likely to have not used alcohol in the past 30 days if they lived with both their mother and their father, their mother, or one natural and one step parent.

In order to determine parental concern about drinking, three questions were asked. The first question "Have your parents allowed you to have a teen party during which alcohol was served?" showed that adolescents whose parents would not let them have a teen party where alcohol would be served were more likely to begin drinking in grade 8 or later or to have never used alcohol. Students whose parents would allow them to have such a party were six times more likely to have used alcohol 21 or more times in the last 30 days.

The second question "If you came home from a party and your parents found that you had been drinking, how concerned do you think they would be?" showed that adolescents who had parents who would be extremely concerned were more likely to have never used alcohol or to have begun drinking in grade 8 or later. Adolescents whose parents would be extremely concerned were more likely to have never used alcohol in the

last 30 days.

The third question "How many times has one or both of your parents talked with you about alcohol and/or other drugs?" showed that students who discussed alcohol with their parents a few or many times were more likely to begin using alcohol in grade 8 or later. Students whose parents never discussed alcohol with them were more likely to have used alcohol 21 or more times in the last 30 days.

The question "Are you aware of someone close to you who has a drinking or drug problem?" explores the possible effect of modeling. Students who did not know of a parent, guardian, brother, or sister were most likely to have never used alcohol. Students who did not know of a member of the school staff were more likely to have never used alcohol in the last 30 days or to have begun using it later. Students who did not know of a drinking problem in another relative were most likely to have begun using alcohol in grade 8 or later.

Tobacco use. Students who smoked daily were likely to have used alcohol 21 or more times in the last 30 days. Students who did not smoke daily in the last 30 days were likely to have not used alcohol in the last 30 days, while those who smoked daily were likely to have used alcohol 21 or more times in the last 30 days. In summary, students who smoked were more likely to begin to using alcohol earlier and to use it more frequently.

In regard to the use of chewing tobacco and snuff, students who never used these products daily were more likely to have not initiated drinking. In addition, students who used these products daily were more likely to have used alcohol 21 or more times in the last 30 days. Students who did not use chewing tobacco or snuff in the last 30 days were significantly more likely to have not used alcohol in the last 30 days.

Gender. Female students were significantly more likely to have begun using alcohol in grade 8 or later. Females were most likely to have never used alcohol in the last 30 days. Males were most likely to have used alcohol 3-20 times and 21 or more times in the last 30 days.

Grade. Significantly more students in the ninth grade were most likely to have never used alcohol; however, if they used alcohol, they were most likely to begin using it in grade 7 or earlier. Students in the other grades were more likely to begin using alcohol in grade 8 or later. Tenth graders were more likely to have used alcohol 21 or more times in the last 30 days. Alcohol use in the last 30 days increased with grade level.

Hypothesis Testing

The hypothesis for this study was the following: Gender, grade level, availability of alcohol, peer pressure, tobacco use, and parental pressure are predictors of alcohol use in rural adolescents. [Specifically, being male, being

in a higher grade level, having peer influence to use alcohol, using tobacco, and having parental pressure to use alcohol positively predict the initiation of alcohol use.]

The null hypothesis was the following:

In rural areas, there is no relationship between the initiation of alcohol use and gender, grade level, availability of alcohol, peer pressure, tobacco use, and parental pressure. Based on the analysis of the data, the null hypothesis was rejected.

Summary

Chapter 4 provided a description of the results of the study. A description of the data set was included. The results of the frequency analyses and chi square analyses were reported. Results of the frequency analyses showed that alcohol use does occur in adolescents in Warren County, Kentucky, and many of the respondents used alcohol. The independent and dependent variables were identified for the chi square analyses. The chi square analysis showed that all of the factors selected were significant in predicting alcohol use, and the null hypothesis was rejected.

Chapter 5

Discussion

Alcohol use is one of the health behaviors that adolescents engage in which can lead to health problems during adolescence and adulthood. The importance of knowing how to predict the initiation of this behavior cannot be overestimated. Researchers once thought that alcohol use by adolescents was solely an urban phenomenon, and research was done using only adolescents living in urban areas. Today, however, studies have consistently shown that adolescents who live in rural areas do use alcohol, and the reasons why they begin to use it may be very different from the reasons why urban adolescents begin to use it. By identifying factors which predict alcohol use of adolescents living in rural areas, education and prevention programs can be developed to target these adolescents.

The purpose of this study was to identify factors which may predict the initiation of alcohol use in adolescents living in rural areas. The incidence of alcohol use in the rural area studied was also determined in order to compare the alcohol use in the sample studied with other rural areas. The following variables were examined as predictors

of alcohol use: availability of alcohol, peer pressure, parental pressure, tobacco use, gender, and grade. The dependent variables in the analysis were grade of initiation of alcohol use and alcohol use in the last 30 days. Lifetime use of alcohol was omitted from the study because the results were redundant when compared to the results for alcohol use in the last 30 days. It was assumed that students would more accurately remember their alcohol use in the last 30 days.

Summary of the Study

The Warren County KIDS Team Survey was administered to students in grades 5-12 in the Warren County Schools in April of 1994. The sample of 2,353 students in grades 9-12 was taken from the population for study. Students participating in the survey were determined to be from a rural area using the definition of rural from the United States Census, 1990.

The KIDS Team Survey for grades 9-12 consisted of 58 items. From these items, the responses to 17 specific items were studied using a chi square analysis. Several of the questions were re-coded for the analysis. The dependent variables were grade of initiation of alcohol use, lifetime alcohol use, and alcohol use in the past 30 days. The independent variables were peer influence, parental influence, tobacco use, gender, and grade.

Conclusions

Based on statistically significant results of the chi square analysis, the following conclusions are supported:

1. the only chi square tests which did not produce statistically significant results were the following:

a. the relationship between alcohol use in the last 30 days and knowledge of a drinking or drug problem in a parent, guardian, brother, or sister.

b. the relationship between alcohol use in the last 30 days and knowledge of a drinking or drug problem in another relative.

2. Most students who drank were significantly more likely to have gotten their alcohol from their friends or to have bought it.

3. Students who knew that alcohol or other drugs could be bought at school were more likely to have used alcohol.

4. Students who did not feel peer pressure to use alcohol did not use alcohol.

5. Students began to use alcohol when they began to experience peer pressure.

6. Students who lived with their natural mother and father were more likely to have never used alcohol or to have begun using it later.

7. Students whose parents had liberal views about alcohol use or who allowed alcohol use were more likely to begin drinking earlier and to drink more.

8. Students whose parents never discussed alcohol with them were likely to have used alcohol more often.

9. Students who did not know of anyone with a drinking or drug problem were more likely to have never used alcohol.

10. Students who did not smoke or use chewing tobacco or snuff were more likely to have never used alcohol.

11. Males were significantly more likely to begin using alcohol earlier and to drink more.

12. Younger students were likely to have never used alcohol, while older students were likely to have used alcohol more frequently.

Discussion

Many factors have been identified which influence the initiation of alcohol use in adolescents. Based on the theories presented regarding the initiation of alcohol use, the following variables were determined to be significant in predicting alcohol use in adolescents: availability of alcohol, peer influence, parental influence, tobacco use, gender, and age. These factors have been correlated with alcohol use but have not been proven to cause alcohol use. Although the factors which were included in this study are important, other factors which were not included may have influenced the results.

The results of the study revealed that alcohol use in adolescents in Warren County, Kentucky is common. When examining the results of the chi square analysis to explore

the factors which may predict the initiation of alcohol use, the majority of the conclusions from the study were consistent with the findings in the literature. In response to the guiding research question for this research which was the following,

> Do any or all of the following variables predict the initiation of alcohol use in adolescents in rural areas, specifically in students in grades 9-12 in Warren County, Kentucky: gender, grade level, availability of alcohol, peer pressure, tobacco use, and parental pressure?,

all of the variables were found to be significant in predicting alcohol use in rural adolescents.

The accepted hypothesis was the following: Availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade are predictors of the initiation of alcohol use in rural adolescents. The results showed that having alcohol available, having peer influence to use alcohol, having parental influence to use alcohol, using tobacco of any kind, being male, and being in a higher grade predict the initiation of alcohol use. It is important to note that the factors identified as being significant in this study which used a sample of rural adolescents are some of the same factors which have been identified as being significant with urban adolescents. This study has shown that urban and rural adolescents are influenced by some of

the same factors in regard to initiation and use of alcohol.

Limitations

The generalizability of the results of this research is limited by the sample chosen for study. The sample was not a true random sample. A sample of convenience was used. In addition, adolescents attending the alternative school or absent on the day of testing were not included in the survey. Students who have high absentee rates or who attend the alternative school are higher risk for alcohol and drug use. The use of alcohol, therefore, may be underestimated because students with drinking or drug problems were excluded from the survey.

Another concern is that the respondents may not have been completely honest when answering the survey. The instrument used was a self-report instrument, and the students may have been concerned about the confidentiality of the survey. This idea is evidenced by the fact that 170 students did not disclose their gender on the survey, and 80 students did not disclose their grade level. In addition, the instrument possesses only face validity, and the results may be distorted.

In addition, because a regression analysis was not performed, the interactions between the variables were not studied. The most important variable in predicting alcohol use in adolescents in rural areas cannot be determined by this study. However, Scheier and Newcomb (1991) believe

that "susceptibility to drug involvement is based on the number of risk factors present, rather than the relative importance of any one factor" (p. 278). Webb et al. (1991) explain that the number of factors which an adolescent possesses is linearly related to drug use. They explain that experimentation with alcohol is normative, and the majority of adolescents do not progress into substance abuse or dependence.

Other factors which have been determined to be important in studying alcohol use in adolescents were not included in this study. A factor that was omitted may be very significant and may have influenced the results of the study. The factors which have been studied may explain some part of the alcohol use in rural adolescents; however, it is possible that other unmeasured factors may account for the use of alcohol in rural areas.

Implications for Health Education

As Healthy People 2000 states, "progress will depend greatly on maintaining and increasing levels of public education and awareness" (USDHHS, 1992, p. 165) when designing any health education programs. This statement is especially true about alcohol use; the public must be made aware that alcohol use is a problem for all adolescents, not just adolescents in urban areas. In order to prevent alcohol use in adolescents in rural areas, programs should be developed taking into consideration the special needs of

rural adolescents. Although the factors that influence alcohol initiation and use in urban and rural adolescents are similar, the programs which target the different types of adolescents may not necessarily be the same.

Programs which focus on resisting peer pressure should be stressed because this factor seems to be one of the most important predictors of the initiation of alcohol use. Tobacco use of any kind should be discouraged because it may lead to alcohol use. Prevention programs should be targeted at the younger grades before alcohol use begins. Programs should also be developed to target males because they are more likely to use alcohol earlier and in greater amounts.

By educating children and adolescents about alcohol use and its consequences, alcohol use can be prevented or delayed until they are able to make knowledgeable decisions. They can learn to use alcohol appropriately which can hopefully decrease problems related to alcohol misuse later in life.

Recommendations for Future Studies

Based on the results of this study, the following suggestions are made for future studies:

1. More factors that may influence the initiation of alcohol use in rural adolescents should be included in future studies.

2. The instrument used in this study should not be used in future studies unless it is revised to make it more

appropriate for research purposes.

3. Peer pressure in regard to alcohol use and initiation should be studied in more detail.

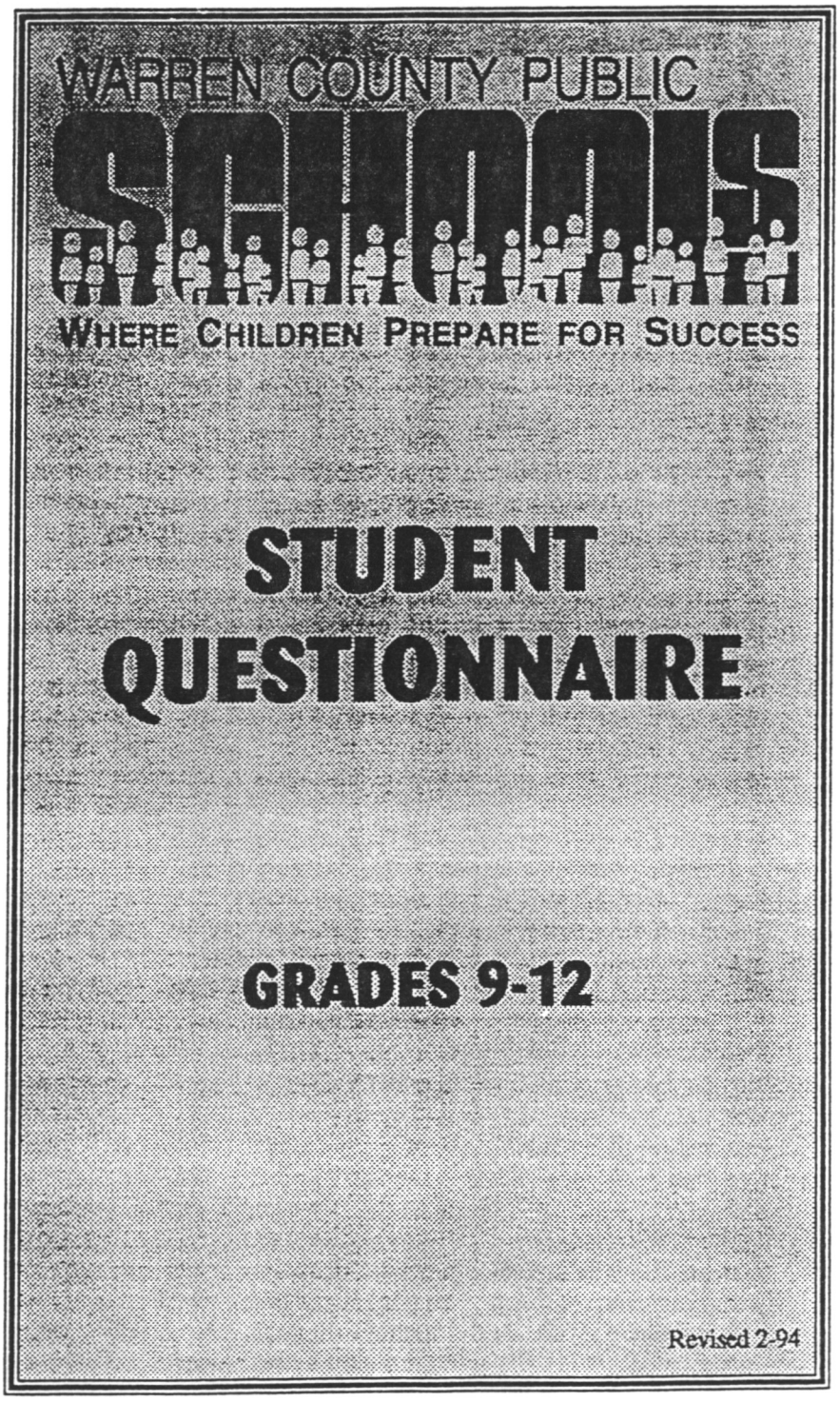
4. Abstinence from alcohol use and the factors which contribute to it in rural areas should be studied.

5. A trend study should be done comparing responses from the various years of the survey administration.

Summary

Chapter 5 contained a discussion of the study results and a summary of the study. The researcher examined factors that may be used to predict the initiation of alcohol use in adolescents living in rural areas. The foundation of the study was that learning when adolescents are likely to begin using alcohol and determining factors which influence the initiation of its use can lead to the development of better education and prevention programs. Availability of alcohol, peer influence, parental influence, tobacco use, gender, and grade were found to be significant factors which influence the use of alcohol. Limitations of the study were mentioned. Implications for health education were also discussed and recommendations for futures studies were made. When implementing health education programs and when designing future studies, it is important to remember that many other factors contribute to the initiation of alcohol use. More research should be done in order to gain a better understanding of why rural adolescents begin to use alcohol.

Appendix A


WARREN COUNTY PUBLIC
SCHOOLS
WHERE CHILDREN PREPARE FOR SUCCESS
STUDENT
QUESTIONNAIRE
GRADES 9-12
Revised 2-94

WARREN COUNTY SCHOOLS

KIDS TEAM

KNOWLEDGE & INFORMATION
ABOUT DRUGS & SUBSTANCES

Dear Students:

As you know, Warren County Schools has been providing drug and alcohol prevention education and awareness activities through the K.I.D.S. program for a number of years. We feel the message that alcohol and drug use is harmful is being heard by many of the students across the district. However, we are also aware that we still have a number of students who are making dangerous decisions in regard to alcohol and other drugs. Nationally, the statistics remain alarming with millions of teenagers indicating they use alcohol every week. There is also much evidence that underage drinking and drug use is clearly associated with violence, suicides, and other youth and teen problems.

Drug use continues to be a serious problem for our society. You, as our future leaders, are making decisions every day that may involve alcohol or other drugs. The purpose of this survey is to determine the type and extent of these and related problems among students in the Warren County School District.

We need your help in answering each question honestly so that we can better know how to provide help to students. This survey is **completely anonymous**. We do not want your names and there are no code numbers. Your answers to the questions will not be identified in any way. An envelope will be passed around when you are finished so you can insert your response form without anyone seeing your answers.

The survey is also **voluntary**. If there is any question which you or your parents would object to, just leave it blank. Please remember this is not a test. There are no right or wrong answers. Just be as honest as you can in choosing the answers that best describe you. Your answers to the questions are very important.

Thank you for your cooperation. It is our goal as a school district to provide as much help and assistance as possible to those students having problems with alcohol and other drugs. It is our mission that some day all students will be truly drug free.

GRADES 9-12

1. On the average during the school year, how many hours per week do you work for pay? (Include jobs for which you get a paycheck, or other work like baby-sitting or mowing lawns.)

   a. none
   b. 5 hrs./less
   c. 6-10 hrs.
   d. 11-20 hrs.
   e. 21 or more hrs.

2. With whom do you live?

   a. mother and father
   b. mother
   c. father
   d. one natural parent and one step-parent
   e. other

3. During an average week, how much money do you have to spend?

   a. None
   b. $1-$20
   c. $21-$40
   d. $41-$60
   e. Over $60

4. During an average week, how much money do you spend on alcohol and other drugs?

   a. None
   b. $1-$20
   c. $21-$40
   d. $41-$60
   e. Over $60

5. In how many extracurriculuar school organizations or activities (sports, music, student government, clubs) do you participate regularly?

   a. None
   b. 1
   c. 2
   d. 3
   e. 4 or more

6. In how many non-school organizations or activities do you participate regularly (church activities, youth groups, 4-H, community sports, etc.)

   a. None
   b. 1
   c. 2
   d. 3
   e. 4 or more

7. How many times in your lifetime have you smoked cigarettes?

   a. Never
   b. once or twice
   c. occasionally, not regularly
   d. daily in the past
   e. daily now

8. How many times during the last 30 days have you smoked cigarettes?

   a. Never
   b. once or twice
   c. occasionally, not regularly
   d. daily

9. How many times in your lifetime have you used chewing tobacco or snuff?

   a. never
   b. once or twice
   c. occasionally, not daily
   d. daily in the past
   e. daily now

10. How many times in the last 30 days have you used chewing tobacco or snuff?

    a. never
    b. once or twice
    c. occasionally, not daily
    d. daily

11. When was the first time, if ever, you drank more than just a few sips of alcohol (beer, wine, wine coolers, or liquor)? **Choose only one.**

    a. never
    b. never more than few sips
    c. grade 5/younger
    d. grade 6/7
    e. grade 8 or older

12. At what grade did you first feel influenced or pressured by others to drink?

    a. never
    b. grade 5/younger
    c. grade 6/7
    d. grade 8
    e. grade 9/older

13. How many times, if any, have you had alcohol to drink in your lifetime? (More than a few sips.)

    a. never
    b. 1-2 times
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

14. How many times, if any, have you had alcohol to drink in the last 30 days? (More than a few sips.)

    a. never
    b. 1-2 times
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

15. If you drink alcohol, how often do you drink enough to feel drunk?

    a. don't drink
    b. drink occasionally but never get drunk
    c. few times
    d. half the time
    e. nearly always

16. If you drink alcohol, how many beers, wine coolers, mixed drinks, etc. do you usually have during one evening or one episode of drinking.

a. don't drink
b. 1-2
c. 3-5
d. 5-10
e. more than 10

17. During the past year where have you most often drunk alcohol (if at all)?

a. have not drunk alcohol at all
b. at home
c. at a friend's home
d. at school
e. other

18. During the past year which of the following drugs (if any) have you used during the school day at your school? **(Select all that apply)**

a. have not used drugs at all
b. have not used drugs at school
c. have used tobacco at school
d. have used alcohol at school
e. have used other drugs at school

19. During the past year, which of the following drugs (if any) have you used during a school-sponsored activity such as a game, dance, sports practice, etc.? **(Select all that apply)**

a. have not used drugs at all
b. have not used drugs at a school-sponsored activity
c. have used tobacco at a school-sponsored activity
d. have used alcohol at a school-sponsored activity
e. have used other drugs at a school-sponsored activity

20. Have your parents allowed you to have a teen party during which alcohol was served?

a. yes
b. no

21. Where do you most often get the alcohol you drink?

a. never drink
b. at home
c. from friends
d. I buy it myself at a convenience or grocery store
e. other

22. Where do you most often get drugs, other than alcohol and tobacco, that you use?

a. never use
b. at home
c. from friends
d. from adult drug dealers
e. other

23. If you came home from a party and your parents found that you had been drinking, how concerned do you think they would be?

    a. not concerned
    b. little concerned
    c. somewhat concerned
    d. very concerned
    e. extremely concerned

24. Within the past year, how many times, if any, have your driven a car, truck, or motorcycle after using alcohol, marijuana, or other drugs a short time before?

    a. do not drive
    b. I drive but have never driven after using alcohol or drugs
    c. 1-2 times
    d. 3-5 times
    e. more than 5 times

25. During the past year, how many times were you a passenger in a car, truck, or motorcycle when the driver had used alcohol, marijuana, or other drugs a short time before?

    a. none
    b. 1 time
    c. 2 times
    d. 3 or more times
    e. sought alternate transportation

26. How many times during the past year have you used alcohol with marijuana or another drug (other than tobacco)?

    a. none
    b. 1-5 times
    c. 6-10 times
    d. 11-20 times
    e. 21 or more times

27. How many times in your lifetime, have you used marijuana (weed, pot, bud) or hashish (hash, hash oil)?

    a. never
    b. 1-5 times
    c. 6-10 times
    d. 11-20 times
    e. 21 or more times

28. How many times during the last 30 days, have you used marijuana (weed, pot, bud) or hashish (hash, hash oil)?

    a. never
    b. 1-5 times
    c. 6-10 times
    d. 11-20 times
    e. 21 or more times

29. At what grade did you start using marijuana?

    a. don't use
    b. grade 5/younger
    c. grade 6/7
    d. grade 8
    e. grade 9/older

30. How many times in your lifetime, have you used LSD ("Acid"), PCP ("Angel Dust"), or mushrooms (shrooms)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

31. How many times in the last 30 days, have you used LSD ("Acid"), PCP ("Angel Dust"), or mushrooms (shrooms)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

32. How many times during your lifetime, have you used cocaine (including Crack)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

33. How many times during the last 30 days, have you used cocaine (including Crack)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

34. How many times in your lifetime, have you used heroin, (smack, black tar) or other narcotics like methadone, opium, morphine, codeine, or demerol?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

35. How many times during the last 30 days, have you used heroin (smack, black tar) or other narcotics like methadone, opium, morphine, codeine or demerol?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

36. How many times during your lifetime, have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled other gases or sprays (such as Amyl Nitrate or Butyl Nitrate) in order to get high?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

37. How many times in the last 30 days, have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled other gases or sprays (such as Amyl Nitrate or Butyl Nitrate) in order to get high?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

38. How many times during your lifetime, have you taken Barbiturates or Tranquilizers (sometimes called "Downers", Valium, Libruim)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

39. How many times in the last 30 days have you taken Barbiturates or Tranquilizers (sometimes called "Downers", Valium, Libruim)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

40. How many times during your lifetime, have you taken Amphetamines (sometimes called "Uppers" "Cross Tops", Speed, Pep Pills, Ice)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

41. How many times during the last 30 days, have you taken Amphetamines (sometimes called "Uppers" "Cross Tops", Speed, Pep Pills, Ice)?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

42. How many times during your lifetime have you used Steriods?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

43. How many times during the last 30 days, have you used Steriods?

    a. never
    b. once or twice
    c. 3-10 times
    d. 11-20 times
    e. 21 or more times

44. Is it possible to buy alcohol or other drugs (not including tobacco) in school or on school grounds?

    a. don't know
    b. yes
    c. no

45. Are you aware of someone close to you who has a drinking or drug problem? **(Select all that apply.)**

    a. yes, parent/guardian/brother or sister
    b. yes, school staff
    c. yes, other relative
    d. yes, friend
    e. no

46. Have you ever received professional counseling or treatment for alcohol or other drug use problems?

    a. yes
    b. no
    c. don't know

47. How many times has one (or both) of your parents talked with you about alcohol and other drugs?

    a. never
    b. once
    c. a few times
    d. many times

48. Do you wish your school offered more opportunities to talk about alcohol and other drugs and how they affect people?

    a. yes
    b. no

49. Have you seen drugs or alcohol (other than cigarettes) being used during the school day at your school?

    a. yes, alcohol
    b. yes, drugs
    c. yes, drugs and alcohol
    d. no

50. Which of the following weapons (if any) have you carried to school or onto school campus?

    a. I have never carried a weapon
    b. I have carried a weapon but never to school
    c. a pocket knife
    d. a long knife (hunting knife, switch blade, etc.)
    e. a gun

51. Are you afraid of being physically hurt at school by another student?

    a. yes
    b. no

52. Have you been physically (deliberately) hurt at school by another student?

    a. yes
    b. no

53. Have you become sexually active with another person?

    a. yes
    b. no

54. Have you been in trouble with the police?

    a. yes
    b. no

55. Have you seriously considered committing suicide?

    a. yes
    b. no

56. How honestly did you answer this questionnaire?

    a. very honestly
    b. somewhat honestly
    c. dishonestly

57. What is your grade?

    a. 9th
    b. 10th
    c. 11th
    d. 12th

58. What is your sex?

    a. female
    b. male

Appendix B

Re-Coding of Selected Questions

Dependent Variables

Grade of initiation of alcohol use. #11 When was the first time you drank more than just a few sips of alcohol (beer, wine, wine coolers, or liquor)? Choose only one.

a. never

b. never more than a few sips

c. grade 5/younger

d. grade 6/7

e. grade 8/older

Re-code to:

a and b = Never

c and d = grade ≤ 7

e = grade ≥ 8

Lifetime alcohol use. #13 How many times have you had alcohol to drink in your lifetime? (More than a few sips.)

a. never

b. 1-2 times

c. 3-10 times

d. 11-20 times

e. 21 or more times

Re-code to:

a and b = Never

c and d = 3-20 times

e = ≥ 21 times

Alcohol use in the last 30 days. #14 How many times, if any, have you had alcohol to drink in the last 30 days (More than a few sips.)

a. never

b. 1-2 times

c. 3-10 times

d. 11-20 times

e. 21 or more times

Re-code to:

a and b = Never

c and d = 3-20 times

e = ≥ 21 times

Independent Variables

Peer pressure. #12 At what grade did you first feel influenced or pressure by others to drink?

a. never

b. grade 5/younger

c. grade 6/7

d. grade 8

e. grade 9/older

Re-code to:

a = Never

b and c = grade ≤ 7

d and e = grade ≥ 8

Parental influence. #23 If you cam home from a party and

your parents found that you had been drinking, how concerned do you think they would be?

a. not concerned

b. little concerned

c. somewhat concerned

d. very concerned

e. extremely concerned

Re-code to:

a and b = Little concerned

c and d = Moderately concerned

e = Extremely concerned

#45 Are you aware of someone close to you who has a drinking or drug problem? (Select all that apply.)

a. yes, parent/guardian/brother/sister

b. yes, school staff

c. yes, other relative

d. yes, friend

e. no

Re-code to:

For all responses, the answer was coded 1 = yes and 2 = no.

#47 How many times has one or both of your parents talked with you about alcohol and/or other drugs?

a. never

b. once

c. a few times

d. many times

Re-code to:

a and b = Never

c = Few times

d = Many times

Tobacco use. #8 How many times in the last 30 days have you smoked cigarettes?

a. never

b. once or twice

c. occasionally, not regularly

d. daily

Re-code to:

a and b = Never

c = Not regularly

d= Daily

#9 How many times in your lifetime have you used chewing tobacco or snuff?

a. never

b. once or twice

c. occasionally, not daily

d. daily in the past

e. daily now

Re-code to:

a and b = Never

c and d = Not Regularly

e = Daily

#10 How many times in the last 30 days have you used

chewing tobacco or snuff?

a. never

b. once or twice

c. occasionally, not daily

d. daily

Re-code to:

a and b = Never

c = Not Regularly

d = Daily

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